



The Baily Twins'
OUTDOOR
ADVENTURES

The *Baily Twins' Outdoor Adventures* is dedicated to Pennsylvania's children. It is designed to help them better understand ways in which they can influence their environment. It shows them how to act responsibly and become better caretakers of our rich natural heritage. It encourages them to become more involved in efforts to ensure a safe and healthy world in which to live, work, and play, now and in the future.

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The Wild Resource Conservation Fund
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About the Cover:

The wrap-around cover depicts the home and surrounding neighborhood of Jeff and Joni Baily. The Baily twins are the son and daughter of the local conservation officer. They live in the last house of a housing development next to a field where they enjoy discovering the mysteries of the outdoors.

Jeff and Joni's after-school and summer-vacation experiences are revealed in a series of outdoor adventure stories which take place in the woods, the wetland area (Wildcat Swamp), the swimming hole at the sycamore tree, nearby Center City, the lake, Winahatche Creek and their uncle's cabin next to Winahatche State Park. Name the wildlife you find.

SPONSORS

The following organizations provided funding for the printing of The Baily Twins' Outdoor Adventures:

Wild Resource Conservation Fund
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PA Department of Conservation &
Natural Resources

PA Department of Environmental
Protection

PA Fish & Boat Commission

PA Game Commission



Wild Resource Conservation Fund

Dear Pennsylvania Students:

Pennsylvania has a rich natural heritage with an abundance of clean streams, game lands, forests and parks for your enjoyment and recreation. But more and more, our natural resources have been scarred by vandalism, pollution, litter and overuse.

Our state constitution says that "The people have a right to clean air, pure water and to the preservation of the natural...environment. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all people...including generations yet to come."

As young citizens, you have a stake in helping us live up to those words and preserve Pennsylvania's future. The decisions we make now not only have an influence on our environment today, but will affect your lives and those of your children. Pennsylvania needs young people like you who are committed to protecting and preserving our rare natural resources.

I hope the ideas presented in this book will help you understand the importance of using good environmental and outdoor practices. That way you'll be able to maintain Pennsylvania's rich heritage both for your own enjoyment and that of "generations yet to come."

Sincerely,

Frank H. Felbaum

Frank H. Felbaum, Executive Director



While the Clock ticks...

Just about everything we do during our waking hours has some kind of an effect on the environment. For example, if we watch TV, we're using electricity. Much of our electricity is powered by burning coal and burning coal is our primary source of carbon dioxide. Carbon dioxide is one of the main gases that causes the greenhouse effect. Many scientists believe carbon dioxide is

helping to warm planet earth.

This is not to scare you from watching and enjoying TV. Rather, it is to make you more aware of just how much of an influence you have on our environment by doing something simple, like turning out a light in an empty room, or turning the TV off when you're through watching it. Lifestyles can be altered, but not without some extra effort.



- *Every hour you watch TV, 1/2 pound of carbon dioxide is produced in order to make enough electricity.*

- *Every two weeks, Americans throw away enough glass to fill the twin towers of the World Trade Center in New York.*

- *If everyone in the U.S. recycled 1/10 of their newspapers, we could save about 25 million trees every year.*
- *If we take 5 minute showers each day, we use more than 175 gallons of water every week--the equivalent of a nine-month supply of drinking water for one person. Can we adjust our habits?*
- *If you throw away a styrofoam cup today, chances are it will remain in the landfill long after your grandchildren are born!*
- *At least 1/3 of the nation's threatened or endangered species live in wetland areas.*



Every year Americans produce enough "styrofoam" cups to circle the earth 436 times. What are the alternatives?

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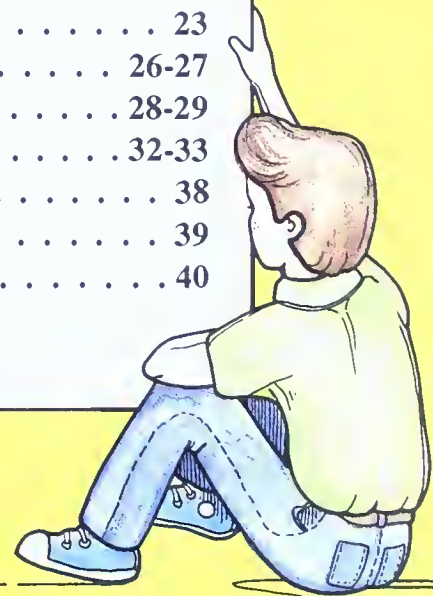
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Recycled Paper



Vulnerable

Rare

Threatened

Endangered

ANIMALS:

Bald Eagle
Osprey
Short-eared Owl
King Rail
Indiana Bat
Eastern Mud Turtle
Bog Turtle
Red-Bellied Turtle
Blanding's Turtle
Midland Smooth
Softshell Turtle
Stickleback
Lake Sturgeon
Shortnose
Sturgeon
Massasauga
N.J. Chorus &
Coastal Plain
Leopard Frogs
Tiger Salamander
Mud Salamander

PLANTS:

White Monkshood
Mountain Alder
Small Yellow
Lady's-Slipper
Missouri Rock-Cress
Swamp-Pink
Leopard's-Bane
Beach Wormwood
Low Showy Aster
Sedges (21 species)
Many others too
numerous to
mention

EXTINCT

Endangered means it's not too late

Extinction has been the earth's natural process over the past two billion years. Many plants and animals, like the dinosaur, have lived and eventually died off. Why then are we upset when we find that a plant or animal is becoming endangered, with the possibility of future extinction?

The problem is, the decline in plants and animals is no longer a natural process--man is causing the decline. Every day throughout the world, plants and animals are becoming extinct because of man's activity. With an ever-increasing human population, there is less wide-open space for wild plants and animals.

What causes endangered species? *True or False*

- _____ 1. Plants and animals are vulnerable to human settlement, loss of habitat, disturbance, or vandalism.
- _____ 2. Plants and animals are susceptible to pollution--pesticides, herbicides.
- _____ 3. Plants are crowded out by other plants not native to an area.
- _____ 4. Regulated hunting has not caused any species to become endangered.
- _____ 5. Wild plants are never transplanted by home gardeners.

Why try to save plants and animals? *True or False*

- _____ 1. Plants provide oxygen for man to breathe. They provide natural chemistry for the manufacture of medications, and act as natural air conditioners.
- _____ 2. 75,000 plants are known to be edible.
- _____ 3. Birds of prey and owls help decrease rodent infestation.
- _____ 4. Bats eat large amounts of insects.
- _____ 5. Plants and animals provide an indicator for us to measure and monitor a healthy environment so that other species don't become endangered.
- _____ 6. Remember the food web? All plants and animals are food for something!

(answers on inside back cover)

More people means less wildlife

As the human population increases, wildlife populations decrease because people use the space once inhabited by wildlife.

Housing
Shopping centers
Roads
Industrial development
Clean farming practices
all play a role in reducing wildlife habitat.

How many people are there?

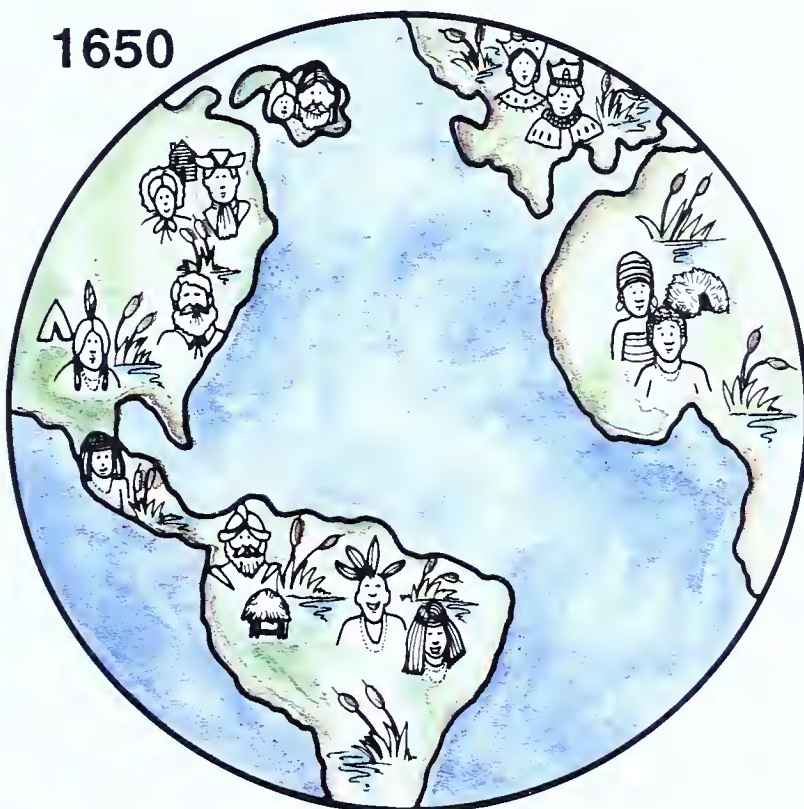
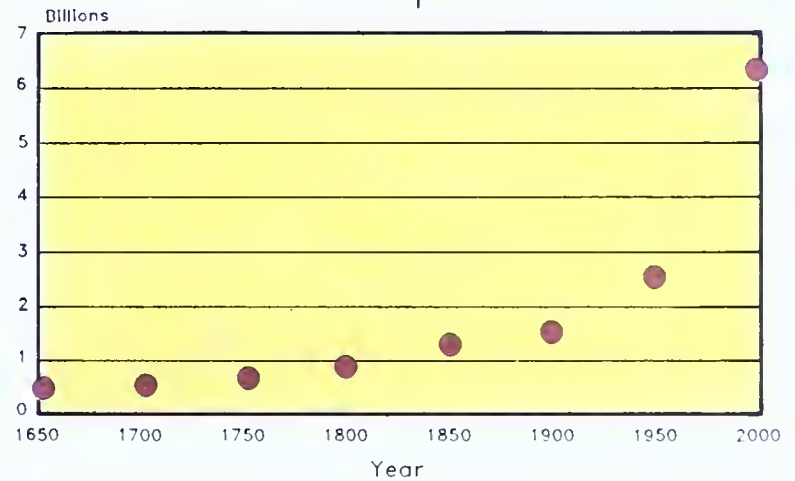
Connect the dots on the chart and you can see how the world population has increased since 1650. When has the most growth taken place?

Year	Number
1650	550,000,000
1700	610,000,000
1750	760,000,000
1800	950,000,000
1850	1,210,000,000
1900	1,630,000,000
1950	2,520,000,000
2000	6,200,000,000

What can you do?

1. Provide wildlife habitat--see the planting and woodworking for wildlife projects on pages 26 through 29.
2. Leave wildlife in the woods. Sometimes we come across an animal that we believe was abandoned by its mother. Chances are, the mother is nearby and will be back soon after you leave. Wildlife has a much better chance at survival if they are taken care of in the wild by their own kind.

World Population





Secret at Wildcat Swamp

Jeff's friend Mark saved enough money from his paper route to buy a four-wheeler. His mom and dad were somewhat hesitant about allowing him to buy one, but they finally gave in, with an understanding that he would wear his safety helmet, stay off the public roads, and not take foolish chances.

After several days of riding around on paths in the open field, Mark decided he needed more of a challenge. He headed down to the swampy area at the lower end of the field.

It had been a rather dry spring, so there wasn't as much water there as usual. Mark began vaulting grassy mounds and

spinning figure 8's through the mud. He couldn't understand why Jeff wasn't allowed to run his bike down here. He was having a great time when, suddenly, out of nowhere, a large, chicken-sized, rusty-colored bird, with a long curved bill and long legs appeared running away on the path in front of him.

Mark was so startled he stalled the bike as he skidded sideways to a stop. There, next to the path, on a platform type arrangement in a grassy nest, sat the strange looking bird's hen. She froze in position, not knowing what to expect.

Mark stood silently looking down at her as he reached to turn the key in the ignition.

What Good Is A Swamp?

Some people think that the word wetland is just a fancy name for a swamp. A swamp to many is just a stinking, mosquito-infested no-man's land--a muddy mess inhabited only by creatures from the black lagoon.

Since we have inhabited this country, humans have found ways to drain, dredge, fill, and dump in wetland areas because they didn't understand the value of them. More than half of all U.S. wetlands have already vanished as farms, cities, ports and marinas have radically changed the appearance of the land.

State and Federal laws give wetlands some protection, but landowners and developers are not happy when they are told they can't do what they want to do with their own land.

FACT: At least one-third of the nation's threatened or endangered species live in wetland areas. The *king rail* that Mark saw is one of Pennsylvania's endangered species. A species is endangered when it is considered in immediate danger of extinction. Many other species are threatened, which means they are likely to become endangered in the foreseeable future.

What do you think Mark did?

Can you identify the bird?

Is the bird a common, threatened, or endangered species?

Why do you suppose Jeff is not allowed to ride through the swamp?

Wetlands Provide:

1. Food
2. Habitat
3. Breeding areas
4. Spawning areas
5. Feeding areas
6. Cover for protection
7. Nursery areas for fish
8. Nesting sites
9. Migration resting sites
10. Waterfowl wintering areas
11. Buffers against erosion
12. Water storage areas
13. Purification system by filtering and removing pollutants.



WETLANDS MATCHING GAME

Pennsylvania is losing wetlands at a rate of:

sponge.

Wetlands act like a:

filtering out sediments, oil, heavy metals and other pollutants.

Undisturbed wetlands can reduce flooding:

flooding.

Filling wetlands causes:

1,200 acres per year.

Many animal species use:

500,000 acres.

Wetlands are among Pennsylvania's most important habitats for:

require access to wetlands at some point in their life cycles.

Wetlands must be protected to prevent:

life

Wetlands might look worthless, but they are full of:

flooding, property damage, water pollution, and species extinction.

Wetlands improve water quality by:

by as much as 40 to 60 percent.

The majority of Pennsylvania's threatened and endangered species:

wetlands.

The U.S. Fish & Wildlife Service estimates wetland acres in Pennsylvania at:

are provided to more than 500 species of mammals, waterfowl, other birds, reptiles, and amphibians, who come regularly to wetlands.

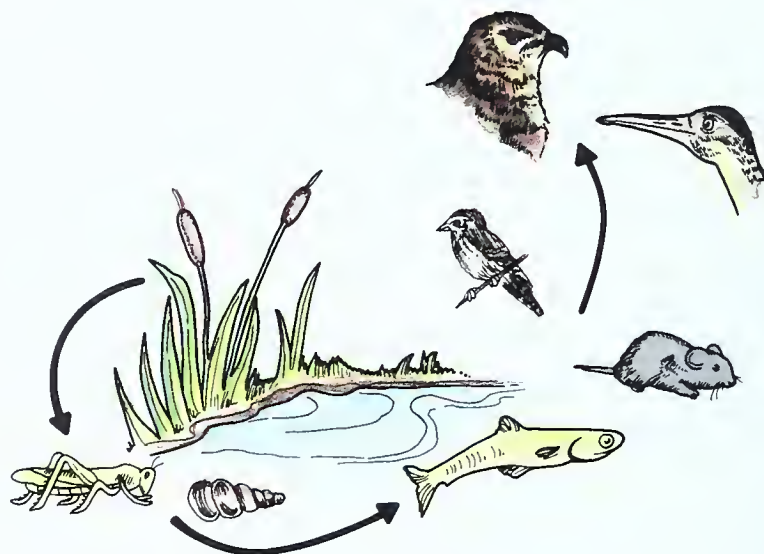
Food, cover, and breeding areas:

plants, fish and wildlife.

(answers on inside back cover)

Who eats who?

One of the main ways in which living things in a community depend on each other is in obtaining food. There are the plants, then the animals that eat the plants, and the animals that eat animals and then, finally, the fungi and bacteria of the soil that feed on the dead bodies of both plants and animals. This network of eating and being eaten is called a food web. Look at Wildcat Swamp on page 7 and find the plants and animals that make up the food web, as illustrated here.



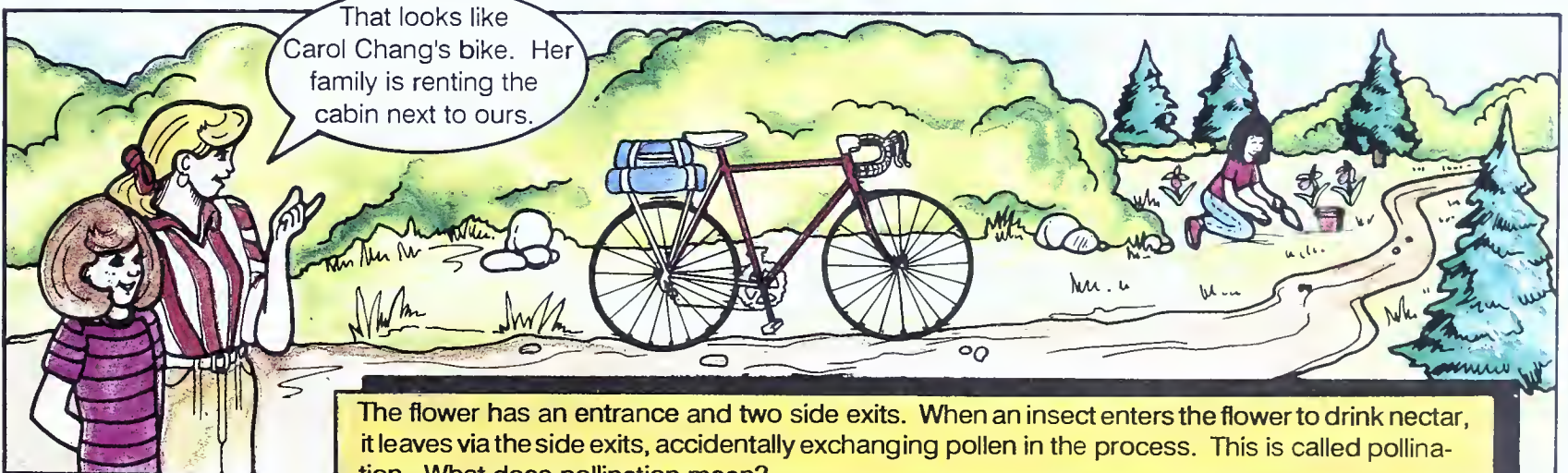
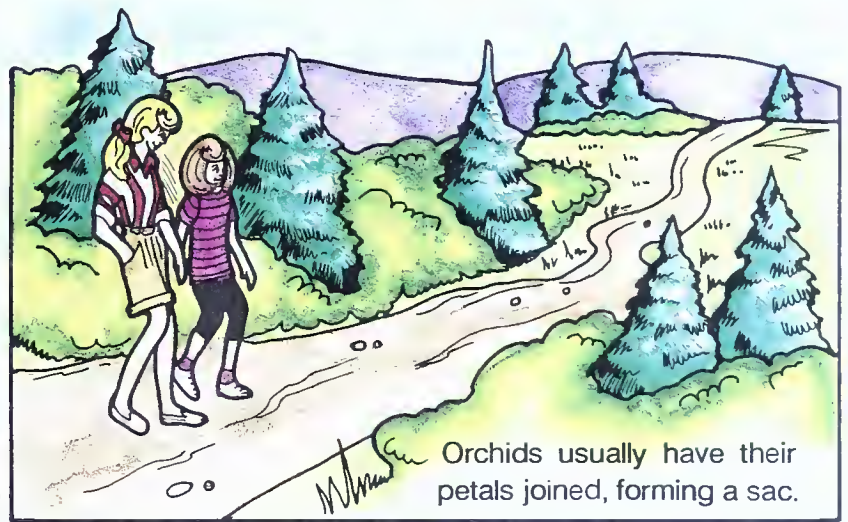
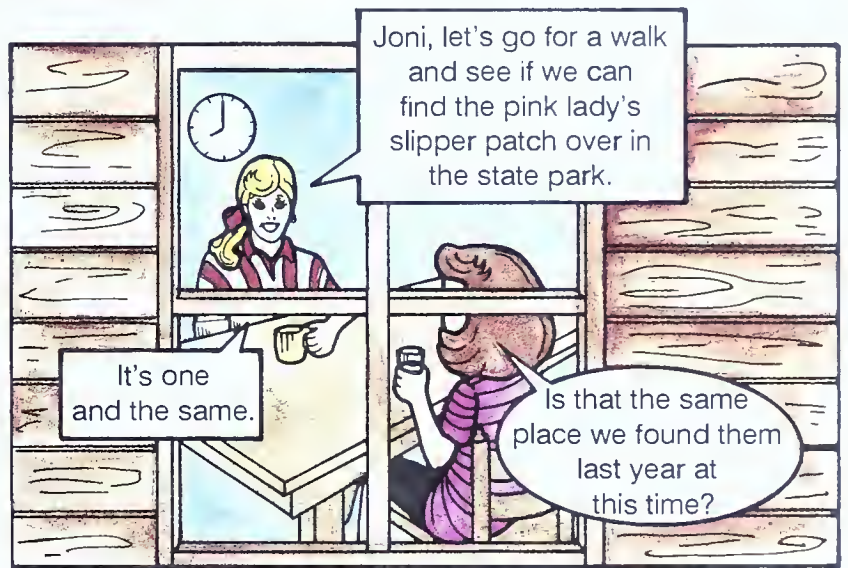
The Case of the Missing Lady's Slipper

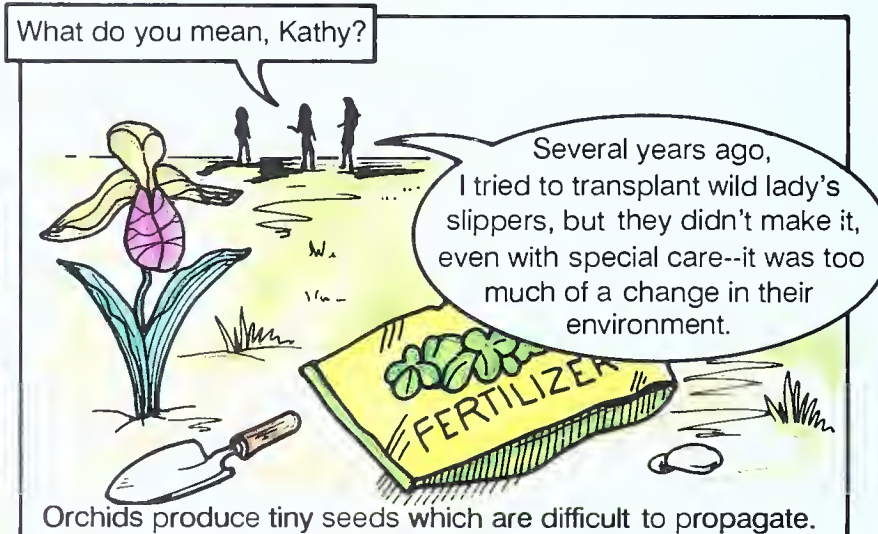
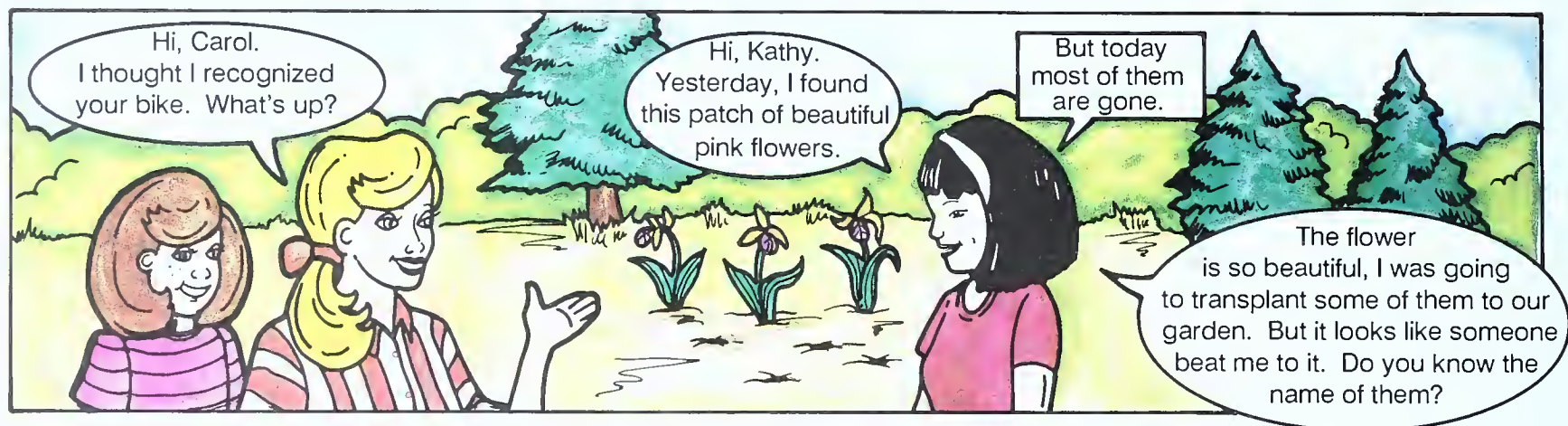


The pink lady's slipper, or moccasin flower, *Cypripedium acaule* is a beautiful orchid found blooming all across the state in May and June.



It was Memorial Day weekend in late May. The twins were spending the weekend with their Aunt Kathy and Uncle Ted at the cabin in Bumblebee Hollow next to Winahatche State Park.





Sometimes plants are their own worst enemies. Many of them are irresistibly beautiful and people are tempted to transplant them to a home garden. That's one way a plant can become in danger of eventual extinction. The best solution is to leave them grow where they are already growing, unless they are in danger of being destroyed because of development. In this situation, with the landowner's permission, it's better to try to move them.

Buyers Beware!

—when buying wild plants and wildlife

Sometimes people are greedy and sell things that they shouldn't sell, like wild plants and animals taken directly from the wild. Be sure the plants and animals you buy have not been stolen from Mother Nature. Find out the source of the plant or animal by asking the store manager.

PLANTS

Beware when a package says field grown. That means the plants were dug from the wild, then transplanted to a field for one year to recover from the shock of transplanting. When a package says hardy northern stock, that usually means the plant was collected from the wild and also shouldn't be purchased.

ANIMALS

Wild turtles, reptiles and fish sometimes show up for sale where they don't belong.

There are out-of-state dealers who have a license to buy and sell propagated wildlife. Before purchasing wildlife from a pet store, check to see if it has been secured from a legal source by checking the documentation.

Fun plants and animals show up in shops and catalogs

Interesting plants and animals sometimes show up in catalogs or shops.

Venus fly traps (the plant that eats small insects) can be purchased at some grocery stores. Without living sphagnum moss and demineralized water, they don't last long. Because of over-collecting, they are threatened in their native states of North and South Carolina.

Propagated store bought plants and animals are more adaptable to home gardens or aquariums because they have become accustomed to a different environment and the shock isn't as intense when moving them.

Besides,

you'll sleep better knowing that you haven't purchased something that one day might become extinct because not enough people cared enough to check things out beforehand. We must be responsible for what we purchase.



The Water Connection

wa·ter (wô'ter, wôt'er) n.

A clear, colorless, nearly odorless and tasteless liquid, H₂O, essential for most plant and animal life.

If water is so important to all forms of life here on earth, isn't it surprising that we take clean water so much for granted? What if you were thirsty for a glass of water, but couldn't drink from the spigot because the water was contaminated?

Contaminated water can make a person sick. Sometimes soft drinks just don't quench thirst like a tall glass of cold water. We read and hear about many people who are having water problems. Do you know anyone who can't drink their well water because it's contaminated?

The good news about water pollution is that we know why and how it happens and we know ways to prevent it. We simply need to put into practice what we already know.

Every day, almost four and a half million Pennsylvanians use about three-quarters of a billion gallons of groundwater for drinking water supplies, which demands high-quality, uncontaminated water.

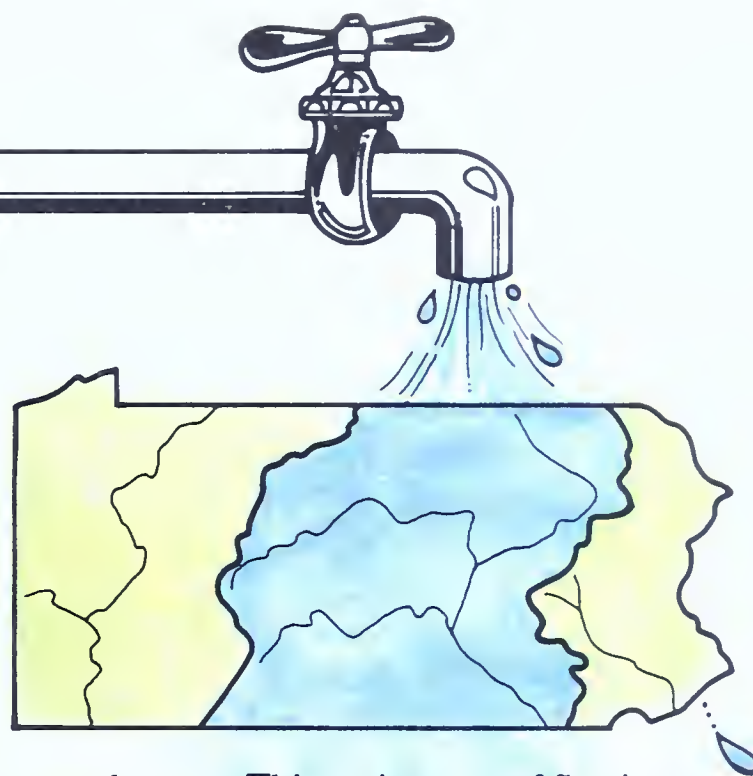
The Pollution Solution

Everyone lives within a watershed area. Everything we pour down our drains, flush down our toilets, or apply to our land, has an influence on the watershed we live in. Let's take a look at the meaning of the word, watershed.

wa·ter·shed (wô'ter-shěd') n.

The geographical region draining into a river, river system, or body of water.

The rain that falls to the earth either runs directly into a stream, called surface water, or soaks into the ground, known as ground water. Surface water and ground water flow from higher elevations to either a spring, stream or lake. As streams become larger on their way to the ocean, they contain more and more surface



or ground water. This entire area of flowing surface water and ground water is considered a watershed.

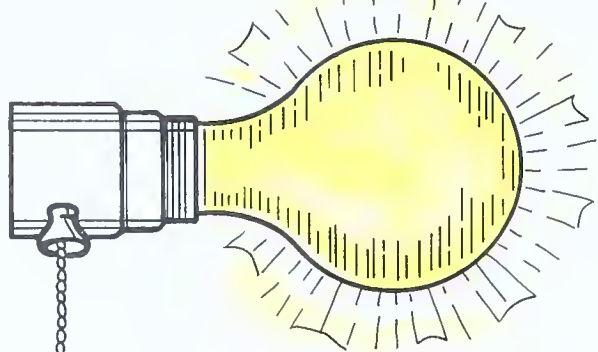
The Baily's live in the Susquehanna River Basin, which is the second largest watershed in the eastern United States, and covers over half the state of Pennsylvania. (See map) All this water eventually ends up in the Chesapeake Bay and on out to the Atlantic Ocean.

The Baily Household

Examine the house on the left before looking at the lists below. See if you can identify ten positive measures the Baily's use to prevent water pollution, to conserve water, or in any other way make a positive effect on the environment.

1. Stones at spout prevent erosion.
2. Compost pile converts vegetable waste to soil, saving on landfills.
3. Recycling glass, newspapers, aluminum, and plastics saves electricity*, oil and landfill usage.
4. Air-drying clothes uses "0" electricity.*
5. Vegetation helps prevent erosion and also cools the house without using electricity.*
6. Painting with water-based paints solves the problem of disposing turpentine, used as a solvent to thin paint and clean brushes.
7. Caulking windows saves oil and electricity.*
8. Brick walkways reduce water runoff.
9. Sufficient insulation saves oil and electricity.*
10. Car tune-ups save fuel.*

*(see Acid Rain article on next page).



(The Baily Household,
continued from Page 13)

Now let's look at the Baily's bad habits and suggest ways they can improve on them.

1. Jeff needs to be more careful to turn off lights.
2. Joni takes long showers which wastes water, electricity and oil. She's also not very careful about tightly turning off water faucets.
3. Does that bug really need to be dead? If the answer is yes, be sure to read the instructions on the pesticide container.
4. Mr. Baily needs to know that fertilizers should be applied according to the amount required for a healthy lawn.
5. Mrs. Baily needs to know that pouring excessive amounts of household chemicals down the drain can contaminate groundwater.
6. Mr. Baily needs to be reminded that old motor oil can also contaminate groundwater. The best way to dispose of it is to take it to a garage that recycles it.
7. Mrs. Baily stockpiles household chemicals under the sink, which can lead to hazardous situations.
8. Mr. Baily needs to repair erosion, because the sediment ends up in the creek near the house.

ACID--a rain of destruction

There has been a lot of talk about acid rain since the early 1980s. It causes lots of problems, like killing fish and trees, and damaging buildings and monuments.

The exhaust from cars causes some of the pollution. Much of it is caused by industries that burn fossil fuels. The sulfur dioxide (SO_2) and nitrogen oxide (NO_x) gases in the emissions from these industries are chemically changed in the atmosphere and return to earth as sulfuric and nitric acids, which we call acid rain.

Here's what happens...

When lakes and streams accumulate too much acid, some plants and microscopic animals die off, reducing the food supply for other aquatic insects and fish.

At this point everything starts to change in the food web (see food web on page 8). Acid-tolerant insects remain, which are not as desirable or plentiful for higher organisms in the food web such as certain species of fish. When this happens, other types of fish replace the original populations.

If it gets too bad, which happens in many streams and lakes across Pennsylvania, there are few or no fish that can survive.

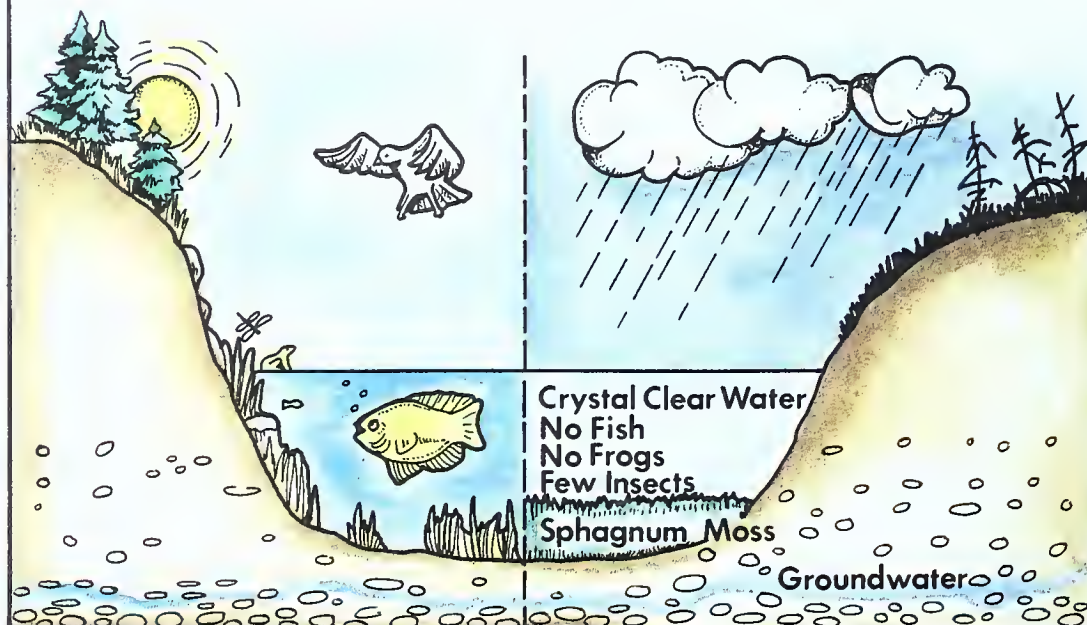
What can you do to help?

Instead of having someone drive you to school, take the bus...or walk, if you can.

Don't forget to close the door behind you to save on electricity and oil.

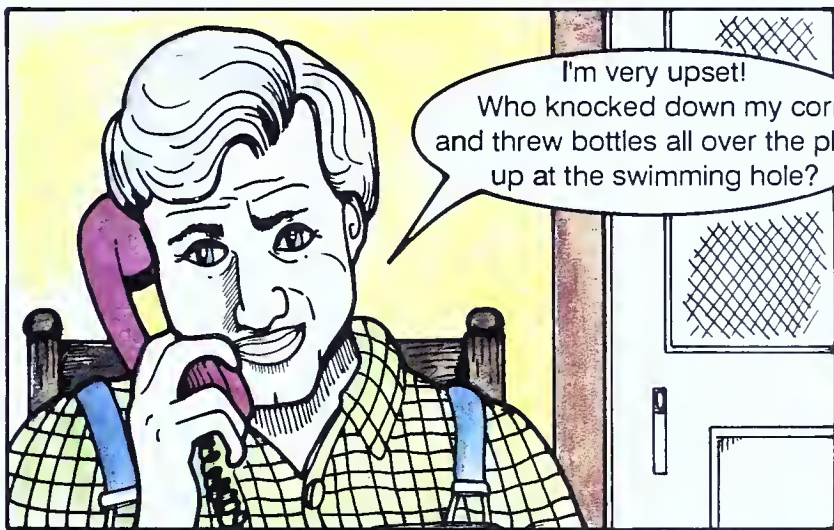
Turn off the lights, or any electrical appliance, when you're not using them.

Conserve electricity by conserving water.

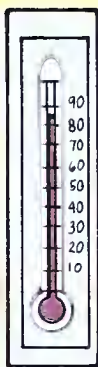


The Corn Field Mystery

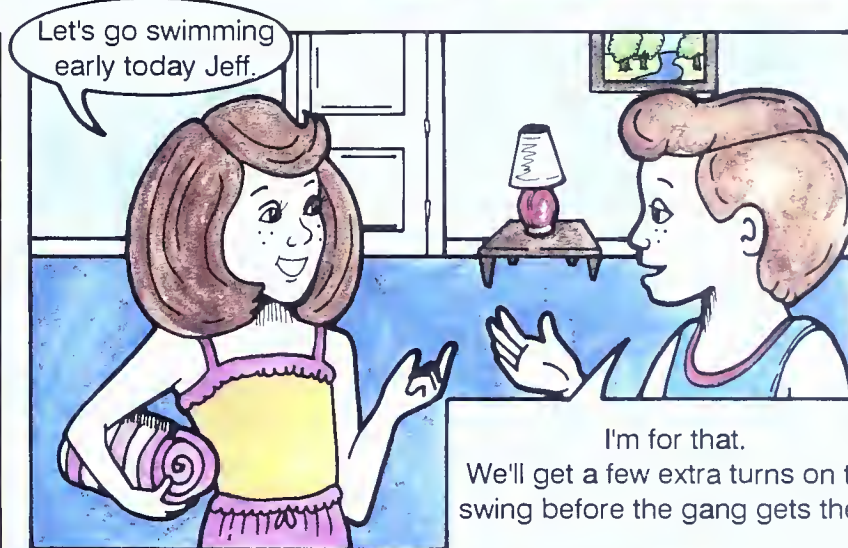
The old sycamore tree, next to Mr. Gregor's corn field and beside the creek, was a favorite hangout on hot summer days for the twins and their friends.

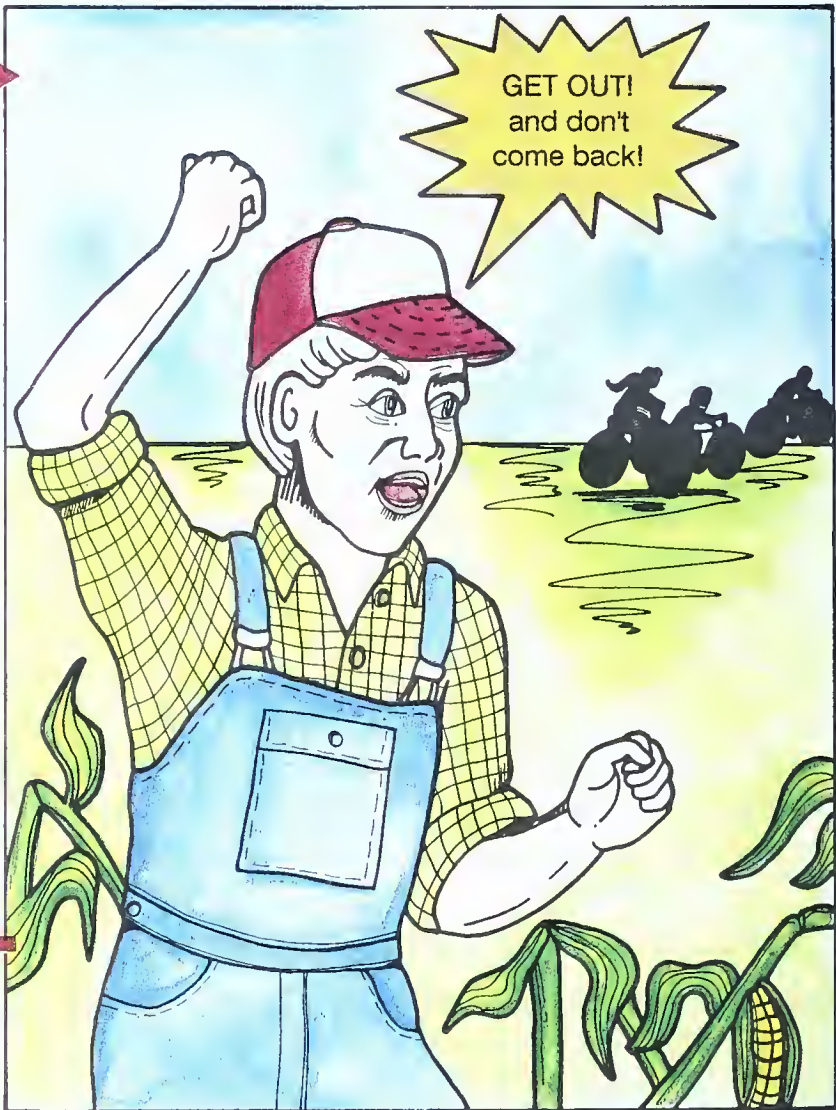


NEXT DAY



It was already 86 degrees and only 10 a.m. A heatwave was into its second week and the only thing to do was think of ways to cool off.





Why was Mr. Gregor upset?

Mr. Gregor earns his living as a farmer. When Mr. Gregor first put his cows out to pasture in the spring, one of his cows cut its foot on some broken glass. The winter before, one of his cows had eaten shreds of a can that had been accidentally picked up and chopped into its food. Animals that eat glass and metal can get very sick and die. The broken down corn represents lost income.

Mr. Gregor has allowed hunting and fishing on his farm for many years. Even more than that, people use his land to cross-country ski in the winter and swim in the creek in the summer, like Jeff and Joni Baily.

The swimming hole didn't get posted from this one episode of broken-down corn and trash. Mr. Gregor has been the victim of bad sportmanship that has been getting worse in recent years and he's seriously considering posting his entire farm.

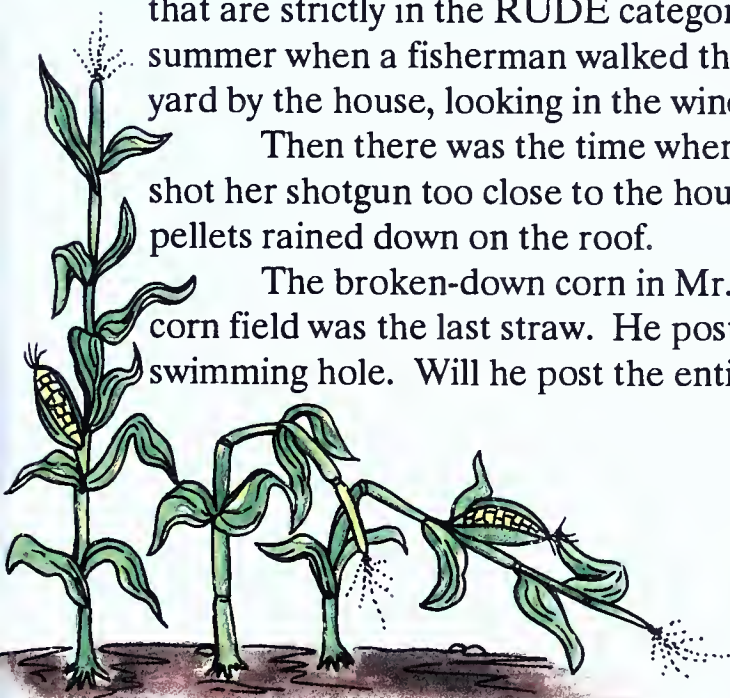
Mr. Gregor's complaints:

The incidents with the cows could have cost Mr. Gregor money, like when he had to replace a cut fence. But not all of the problems caused by others cost Mr. Gregor out-of-pocket money--some cost him time--like last fall when a fisherman parked his truck in front of a field gate and Mr. Gregor couldn't get through to work in the field. And the year before that, the same gate was left open by swimmers. Cows escaped and were standing on the road!

Then there are incidents that happen that are strictly in the RUDE category. Like last summer when a fisherman walked through the yard by the house, looking in the windows.

Then there was the time when a hunter shot her shotgun too close to the house and pellets rained down on the roof.

The broken-down corn in Mr. Gregor's corn field was the last straw. He posted the swimming hole. Will he post the entire farm?



PUBLIC/PRIVATE A RIGHT OR PRIVILEGE What's the difference?

Did you ever plan a fishing trip with a friend to fish a favorite hole only to find out when you arrived that **your spot** was posted. What a bummer! *No Trespassing* signs make everyone angry. The mistake we make is that we target our anger at the landowner instead of the real culprit--people who abuse their privileges when using someone else's property.

All land is owned, no matter how small the parcel. Land is either publicly owned or privately owned. Mr. Gregor's farm is privately owned. Publicly owned lands are state and national parks and forest lands, or county and municipal parks. Let's look at it in another way.

If a friend borrowed your bike, wouldn't you expect to get it back in the same condition as when you loaned it? What's the difference then, if we visit someone else's private property? The fact is, more land is being posted yearly because people abuse privileges when using someone else's property. Even if we have done nothing wrong ourselves, we must pay the penalty of the bad manners of others.

AⓇIGHT ORⓅRIVILEGE CIRCLE ONE

- | | | |
|---|---|---|
| 1. Swimming in the lake at Winahatche State Park. | R | P |
| 2. Hiking through Mr. Gregor's woodlot. | R | P |
| 3. Hunting deer in the state game lands. | R | P |
| 4. Fishing along the streambank on Mr. Gregor's farm. | R | P |
| 5. Enjoying a picnic lunch at the city park pavilion. | R | P |

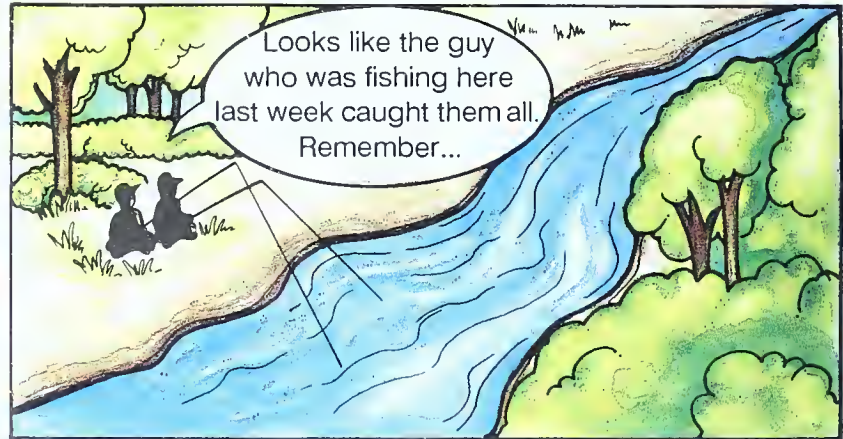
(answers on inside back cover)

You can make a difference

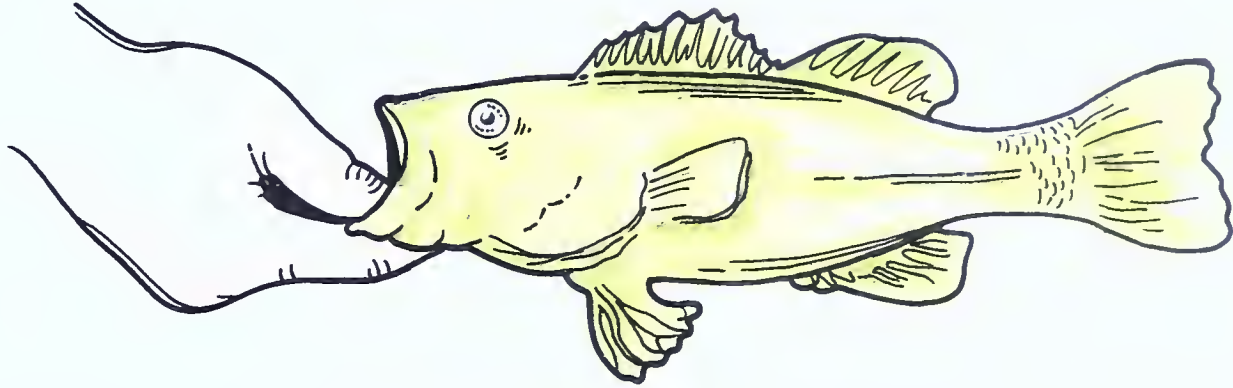
- Ask the landowner's permission. Invite the landowner to join you.
- Respect property and stay away from buildings. Stay out of unharvested crops or fields.
- Cross fences at anchor posts or stiles. Leave gates as you find them.
- Thank the landowner before you leave. Share game or fish with your host.
- Pick up litter or empty shell cases.

The Disappearing Fish

Jeff and his friend Bobby like to fish for trout in Winahatche Creek. They have fished for over two hours without success.

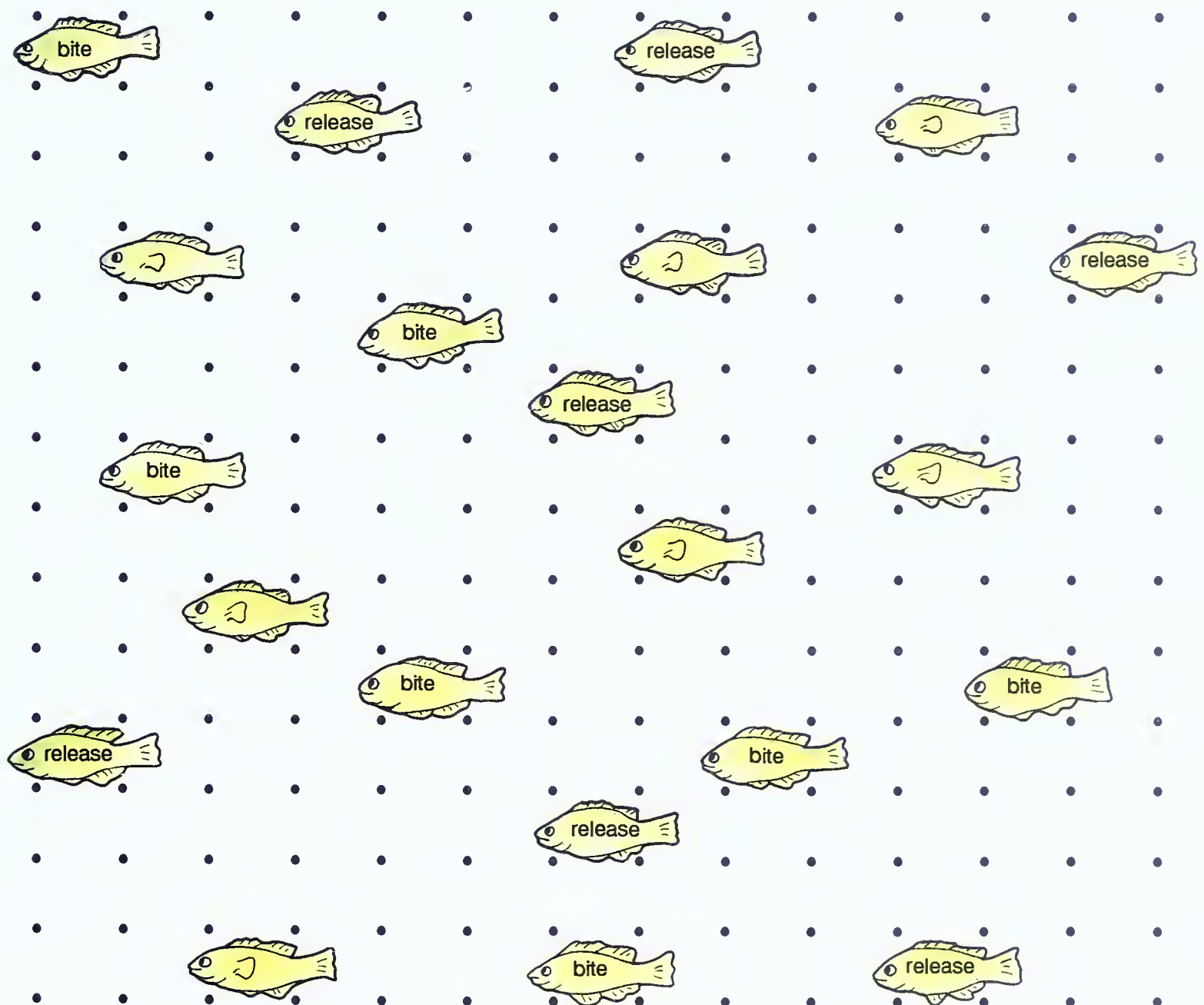


Catch a fish--fry it slow, otherwise--Let it go!

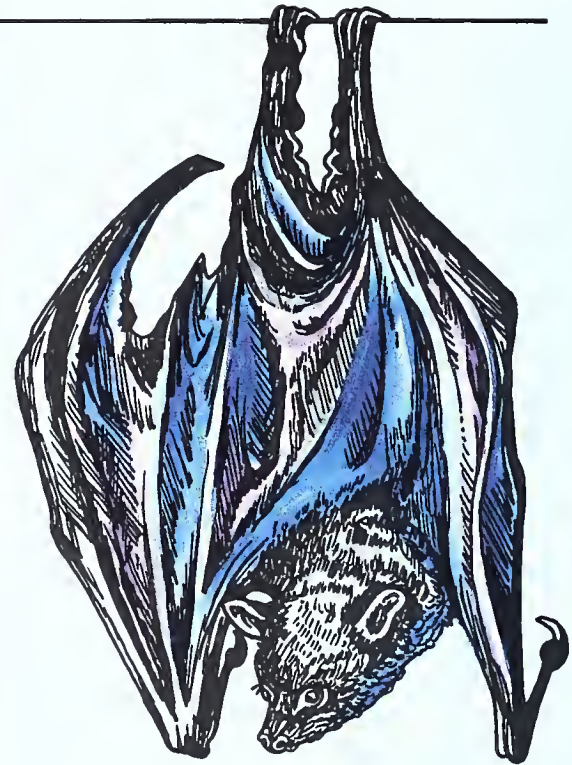


To release a toothless fish without hurting it, firmly hold the fish by putting your thumb inside the lower lip and forefinger outside. Remove the hook, by pushing it back the same way it went in. The first time you remove a hook from a fish with teeth, have someone who knows show you how.

Take a friend fishing by taking turns connecting two dots either across or down, not diagonally. The one who completes a square, initials it. Fish you keep are worth five points, while released fish are worth ten points. If you get a bite and miss, count two points for your effort. All other squares are worth one point. The person with the highest score wins.



C O N T A M I N A T I O N C C
 T O U T D O O R E T H I C S A
 R E N V I R O N M E N T D E R
 E J A S W R E S O U R C E D O
 S U C P E C O S Y S T E M E L
 P A I O T R E C Y C L E F H G
 A N D R L H V A N D A L I S M
 S O R T A I T A B O B B Y R A
 S D A S N R E P T I L E J E S
 I E I M D E C I S I O N S T S
 N N N A K L F F E J O N I A A
 G E S N S W A M P I N N M W S
 S T T W K R I S T T M A R K A
 N A N O O P Q U B A I L Y Y U
 A E A M R S L H A B I T A T G
 K R L A T L I F E S T Y L E A
 E H P N O D E R E G N A D N E
 S T S P E C I E S T H E E N D



Important words you'll find in OUTDOOR ADVENTURES

Look across, down, backwards, or diagonally and circle the words you find on the list. (Answers on inside back cover.)

Do you understand the words? If you don't, look them up in the dictionary. We'll make the world a better place if we learn to understand how we can influence the world around us.

WORDS TO FIND

Conservation

Wetland

Recycle

Endangered

Trespassing

Vandalism

Watershed

Pollution

Outdoor ethics

Sportsman woman

Contamination

Ecosystem

Massasauga

Threatened

Environment

Habitat

Resource

Decisions

Acid rain

Lifestyle

Joni

Jeff

Juan

Bat

Reptile

Snakes

Plants

Swamp

Baily

Bobby

Kris

Carol

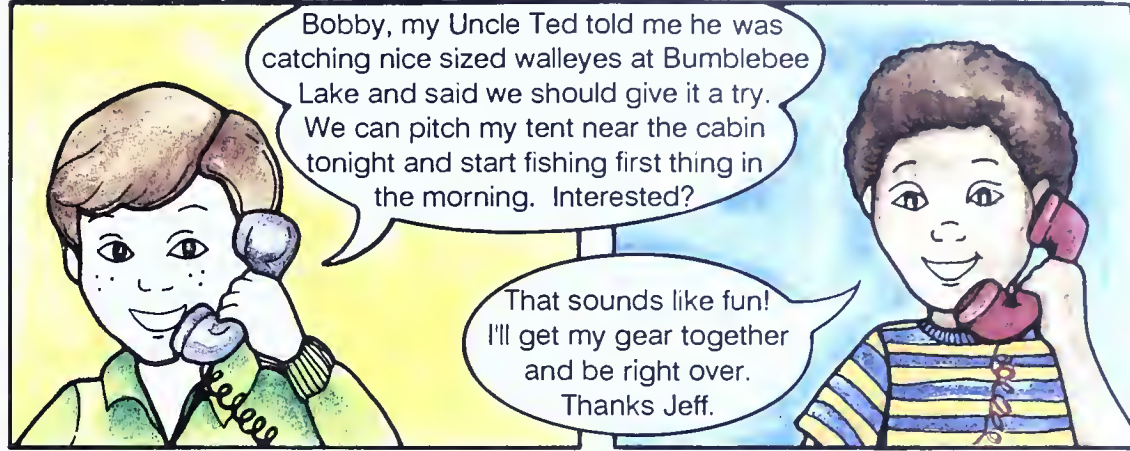
Mark

Species

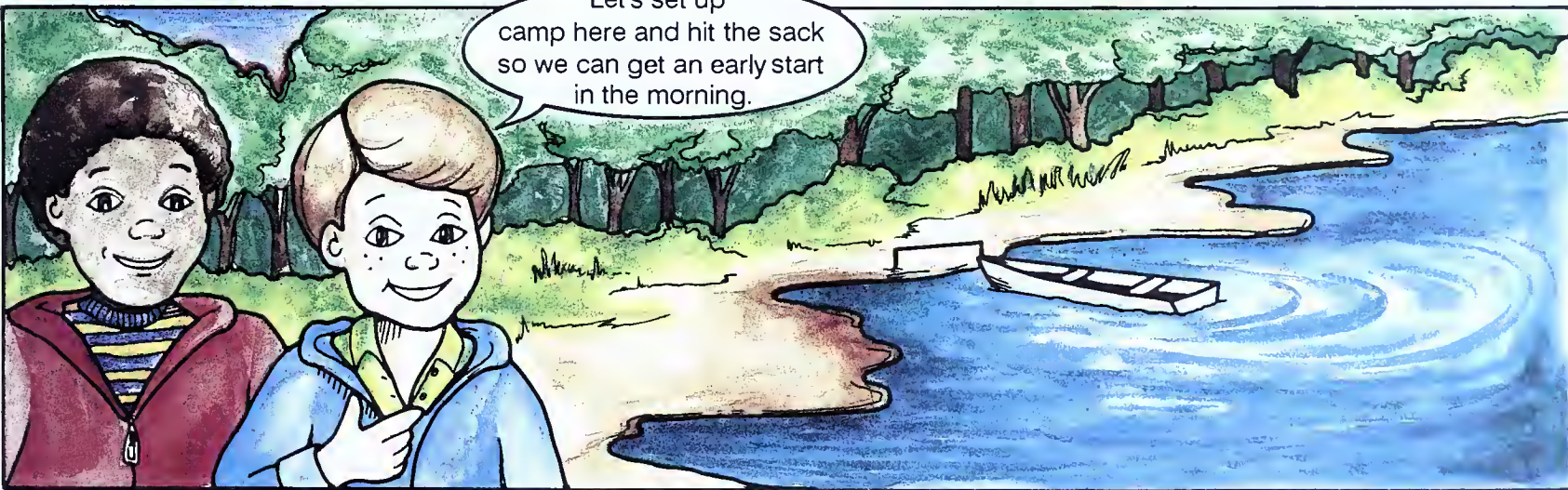
(answers on inside back cover)

Jeff's Uncle Ted owns a hunting cabin near Bumblebee Lake and Jeff and his friends are often invited to spend a weekend.

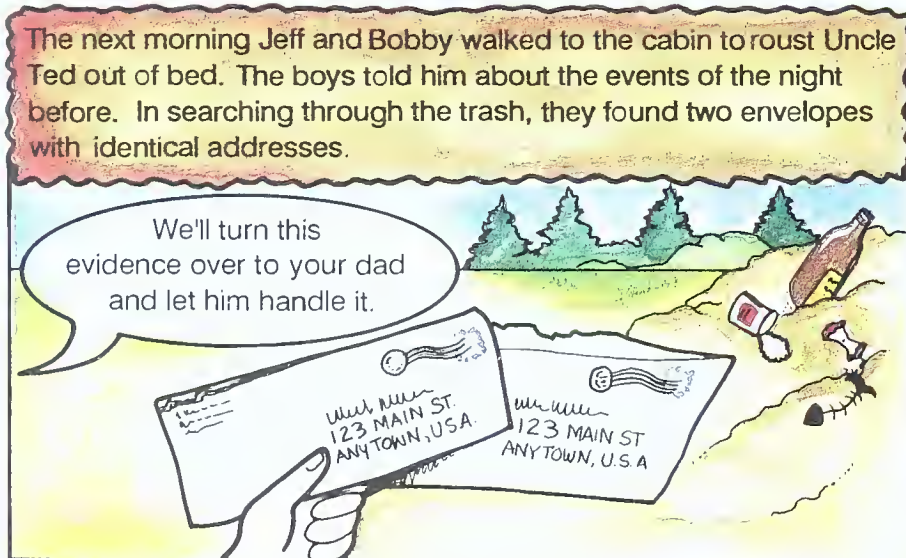
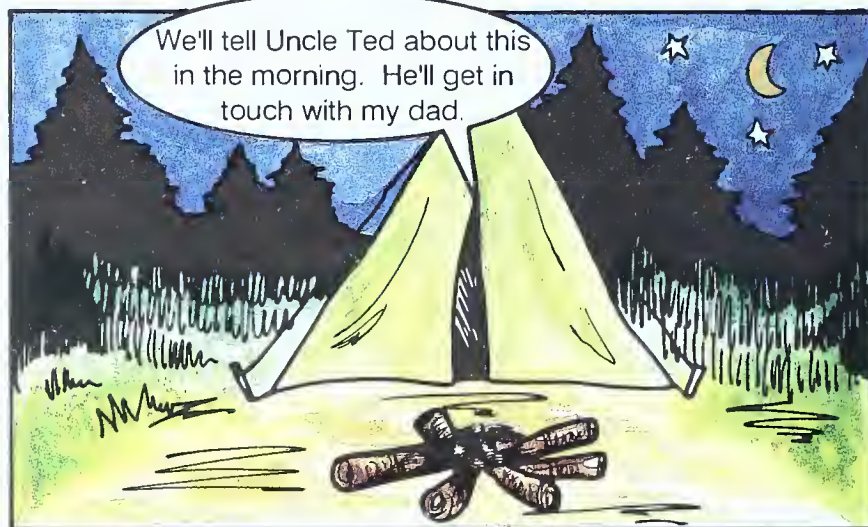
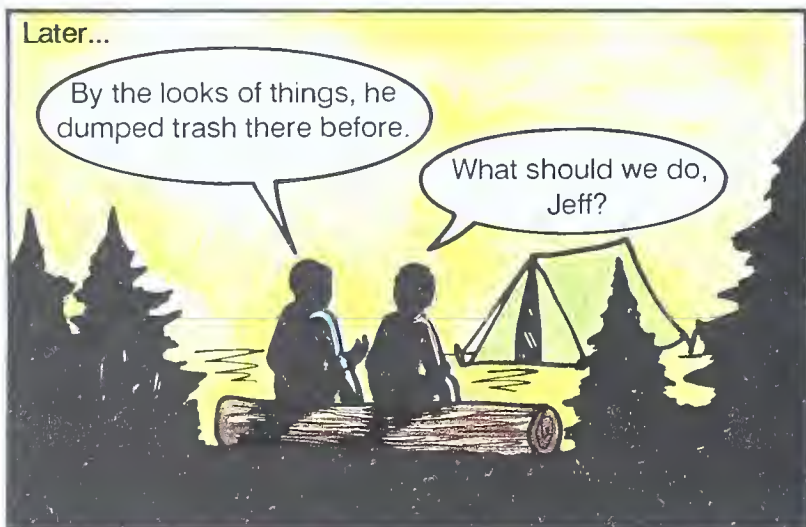
Mystery at Bumblebee Hollow



That trash wasn't there the last time we were here.



They sneaked toward the sounds, hiding in the shadows of an old oak tree.



STASH that TRASH

Don't let it trip you!

Jeff and Joni are helping their parents with Saturday chores. Help them do their chores from 1 through 7 consecutively, without getting stopped by STASH that TRASH. You're allowed to backtrack.

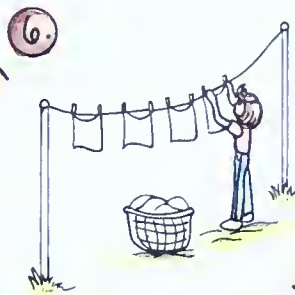
1. Recycling Center
2. Store, taking their own shopping bags or asking for paper bags and returnable bottles.
3. Mr. Baily needs help putting the grass clippings on the compost pile.
4. Joni sets the picnic table for lunch at the local park using mugs, dishes and cloth napkins.
5. Help Jeff sort the recyclables into the right bins-newspapers, green glass, clear glass, aluminum, steel, plastic, cardboard. (Motor oil and car batteries are also recyclable).
6. Help Joni help the neighbor hang her baby's diapers on the clothesline to dry.
7. Tell someone else about recycling and give them the Pennsylvania Recycling Hotline (1-800-346-4242).

CASH \$
\$ FOR
TRASH
Recycling Center

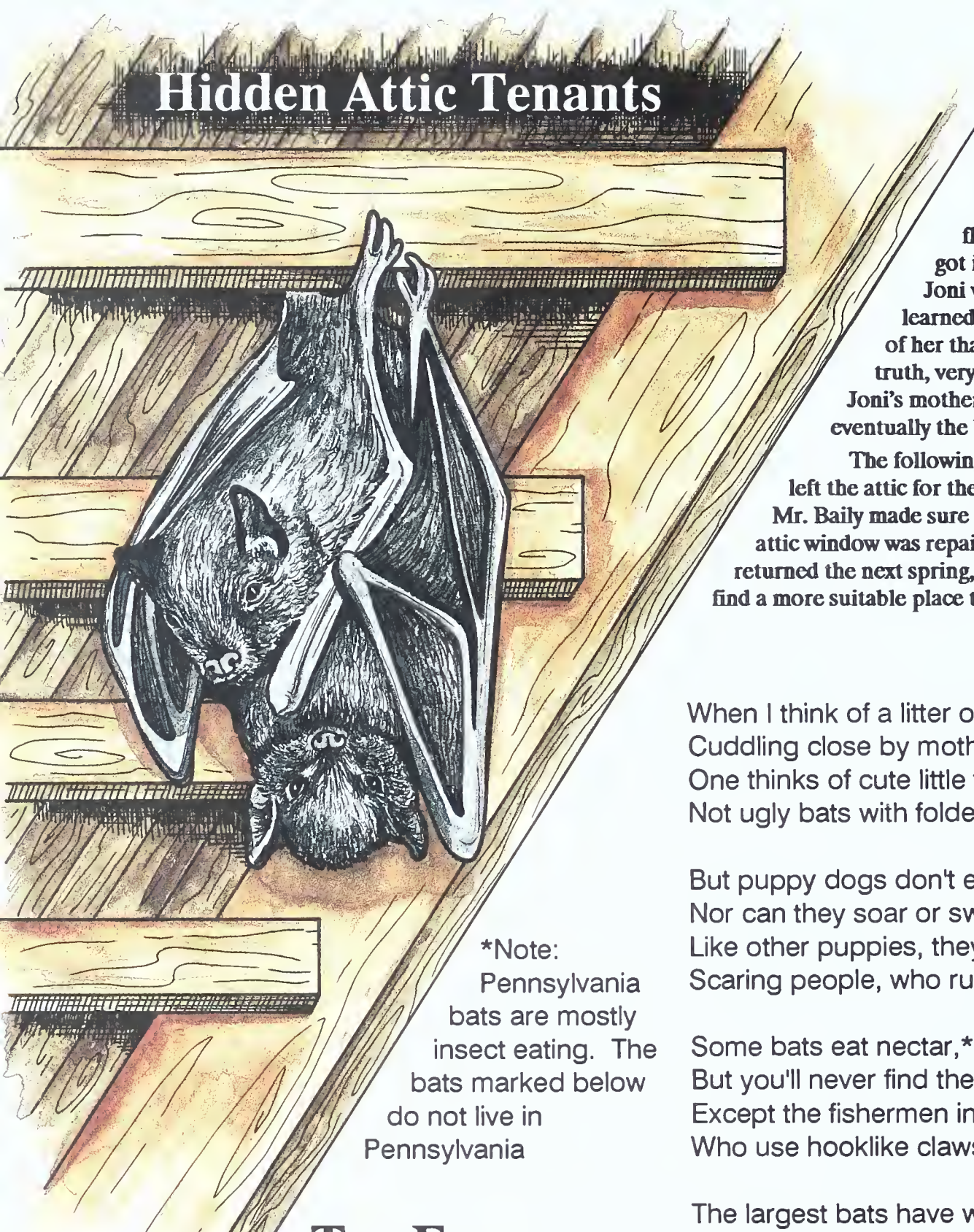
START
HERE!

FINISH

1-800-346-4242



Hidden Attic Tenants



One summer, bats made themselves at home in the Baily's attic. A young bat flew from the attic and somehow got into Joni's room. Of course Joni was terrified, at first, until she learned that the bat was more afraid of her than she was of him. Bats are, in truth, very gentle, intelligent little animals. Joni's mother opened the window and eventually the bat flew out.

The following fall, when the bats left the attic for their winter hibernation, Mr. Baily made sure that the hole in the attic window was repaired. When the bats returned the next spring, they would be forced to find a more suitable place to set up housekeeping.

When I think of a litter of pups,
Cuddling close by mother to sup,
One thinks of cute little furry things,
Not ugly bats with folded parchment wings,

But puppy dogs don't eat 1000's of gnats,
Nor can they soar or swoop like puppy bats,
Like other puppies, they find trouble,
Scaring people, who run on the double.

Some bats eat nectar,* others lick blood,*
But you'll never find them playing in mud.
Except the fishermen in the lot,*
Who use hooklike claws til the fish gets caught.

The largest bats have wingspans of six feet,*
Some are small with only a speck of meat.
Some are shy, some full of suggestion,
Perhaps depending on their look of aggression.

Bats are harmless, helpful, shrewd as can be,
Who like to fly at night when they best can see--
while using their fancy echo-locatery.
Why hurt them then, it would be a sin.

In wintertime you'll find bats asleep,
Together in caves when they don't eat,
In spring they leave to set the date,
For bearing one, instead of eight!

*Note:
Pennsylvania
bats are mostly
insect eating. The
bats marked below
do not live in
Pennsylvania

T rue or F alse

1. Some bats go fishing.* ☐
2. Some bats eat nectar.* ☐
3. Most bats feed on insects. ☐
4. Baby bats are often called pups. ☐
5. Some bats are jelly-bean sized.* ☐
6. Most bats sleep during the day. ☐
7. Most female bats give birth to one. ☐
8. Many bats hibernate in caves. ☐
9. Female bats usually give birth while hanging upside down. ☐
10. Bats are the most important insect controller that flies at night. ☐
11. Bats are in the rodent family. ☐

(answers on inside back cover)

Once I saw a snake in the grass,
Slithering quietly through tall blades,
My first thought told me to run,
Be still my heart--
She's simply headed for that spot in the sun.

Once, I saw a snake in a rock wall,
While climbing down to fetch fish bait,
My face was close-we were eye to eye,
Be still my heart--
She's simply interested in hiding.

Once a friend held a snake in his hands,
Inviting me to touch it,
Reluctantly I reached out to hold,
Be still my heart--
Dispelling all myths of slime and cold.

Once, I ran through the woods at camp,
Suddenly eying a black stick on the ground,
I jumped clumsily with less than perfection,
Be still my heart--
She took off in the opposite direction.

Once, a snake curled under the stairs,
It was a mystery how she got there,
I helped my father pull her out,
Be still my heart--
We freed Miss Innocence, without a doubt.

Jeff opened the outside entrance door to the basement. He walked down the steps and, without bothering to turn the light on, made his way to the garden tools that were leaning in the corner. Suddenly he heard a noise behind him. Something was there, but he was too afraid to move.

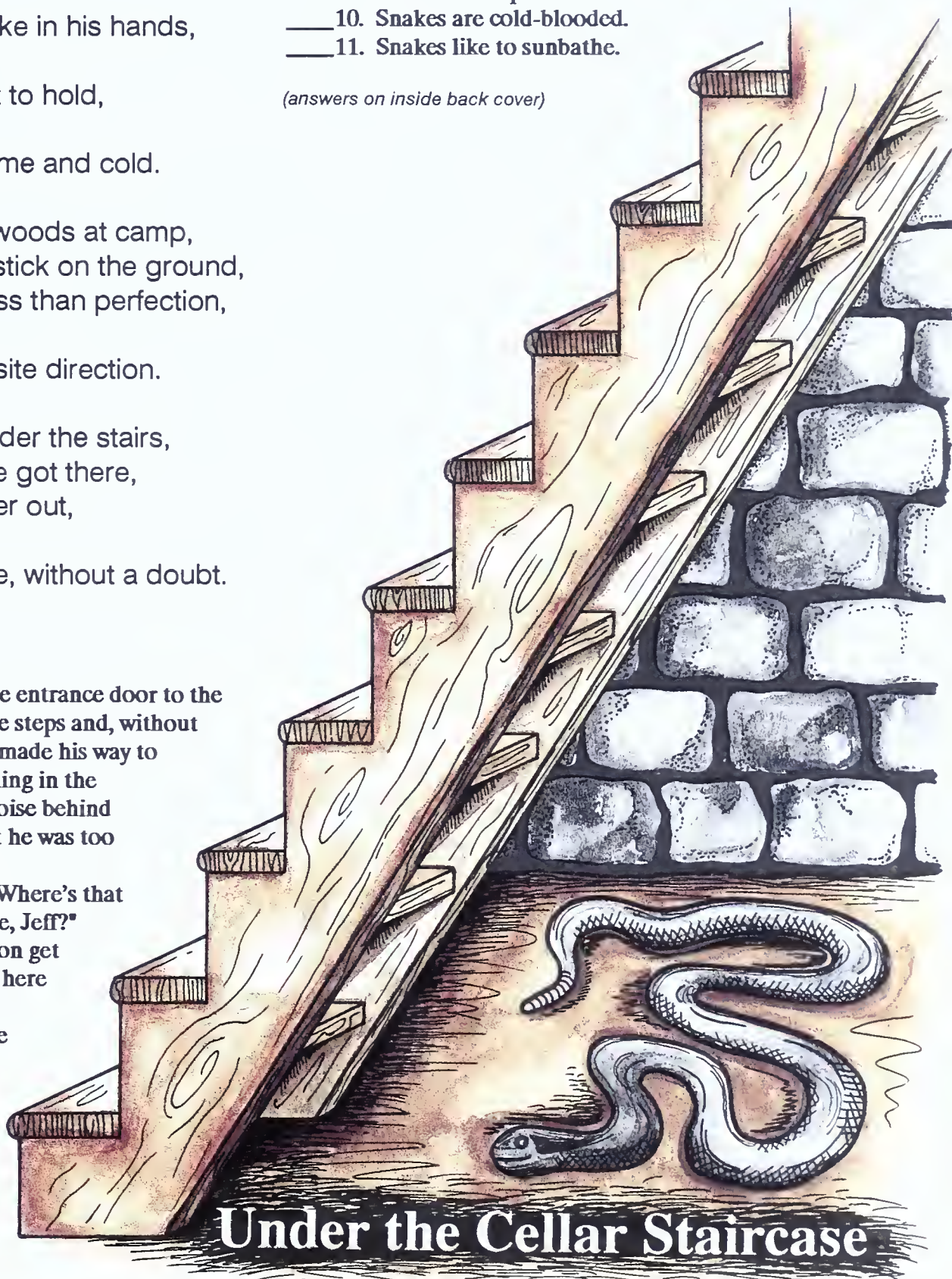
Jeff's dad called out, "Where's that shovel I asked you to get for me, Jeff?" Feeling relief that he would soon get help, Jeff answered, "I'm down here in the basement. Please help!"

Jeff's dad ran down the steps and looked at Jeff who was pointing toward the stairs. Underneath the steps they discovered a 4 foot black snake which was carefully removed to the garden.

True or False

- ___ 1. Snakes eat insects, worms, other reptiles, birds, and mammals.
- ___ 2. Only three of Pennsylvania's 21 species of snakes are venomous.
- ___ 3. The venomous Massasauga is an endangered species.
- ___ 4. Some snakes lay eggs, some give birth to live young.
- ___ 5. The black snake is the largest Pennsylvania snake.
- ___ 6. Some people are afraid of snakes and kill them.
- ___ 7. A milk snake drinks milk from a cow.
- ___ 8. Many snakes die before adulthood.
- ___ 9. Snakes are reptiles.
- ___ 10. Snakes are cold-blooded.
- ___ 11. Snakes like to sunbathe.

(answers on inside back cover)



Under the Cellar Staircase

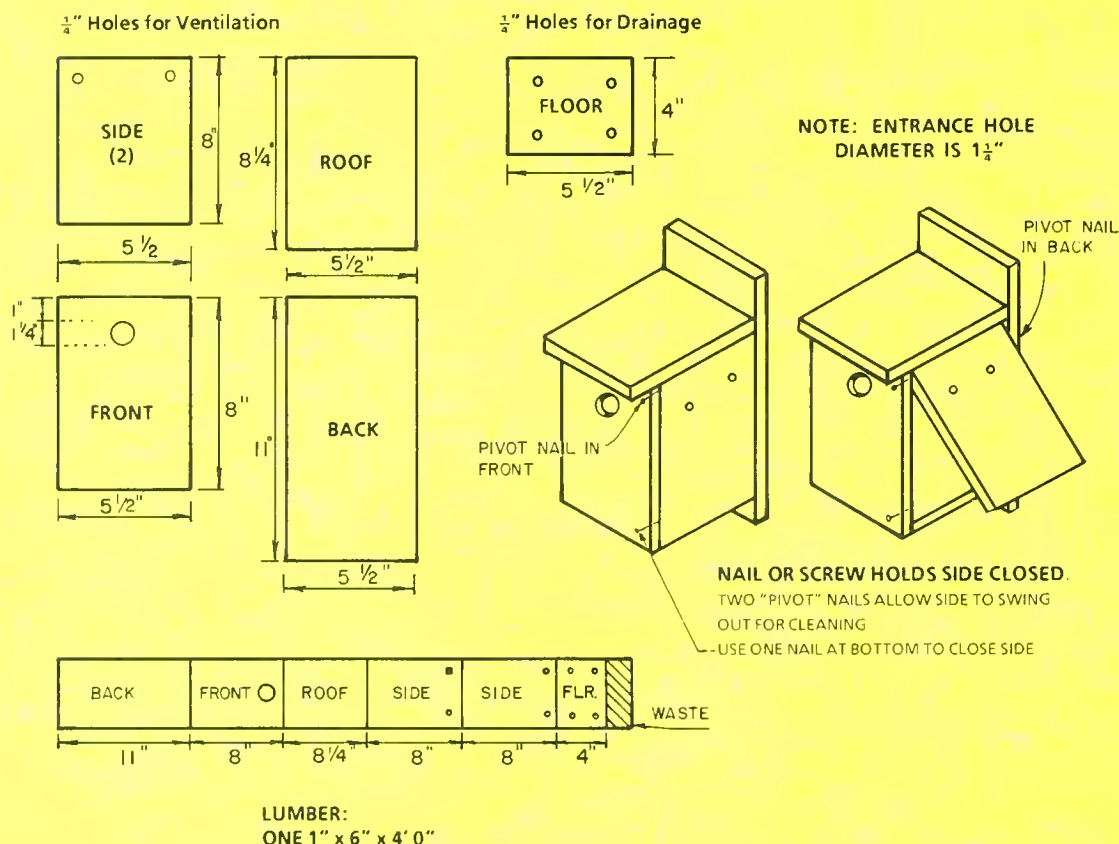
Woodworking for WILDLIFE

Provide room and board--they'll reward you for it

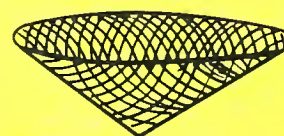
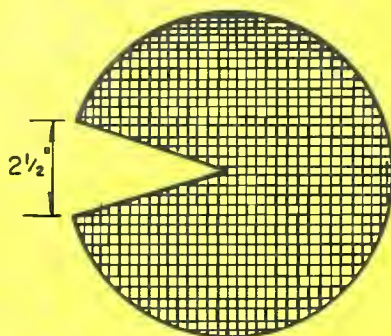
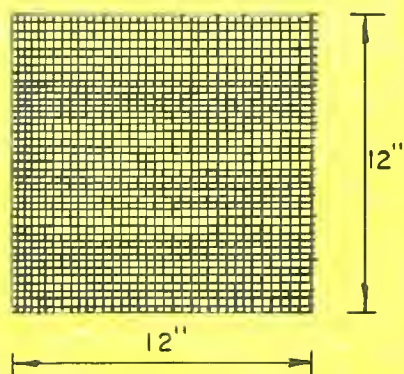
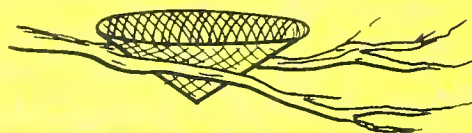
After Jeff and Joni planned their backyard habitat area, they decided that to make it complete they needed to install a bird house, a mourning dove nest basket, a suet feeder, and a window bird feeder. Below are the

plans they used to build them. Look at the diagram in the Planting for Wildlife section. Suggest where they should install the nesting box and basket, the suet feeder, and the window feeder?

NEST BOX FOR: House wren, black-capped chickadee, white-breasted nuthatch, prothonotary warbler, deer mouse, white-footed mouse, tufted titmouse



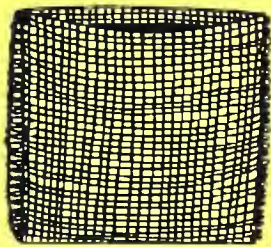
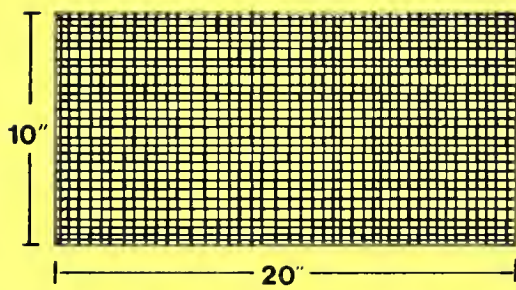
NEST BASKET FOR: Mourning doves



MATERIALS: ONE 12" X 12" PIECE OF HARDWARE CLOTH.

Cut with tin snips to form a circle. Cut out a narrow pie-shape and wire edges together to form a cone. Wire and/or staple cone into the crotch of a tree limb.

SUET FEEDER FOR: Woodpeckers, tufted titmouse, white-breasted nuthatch

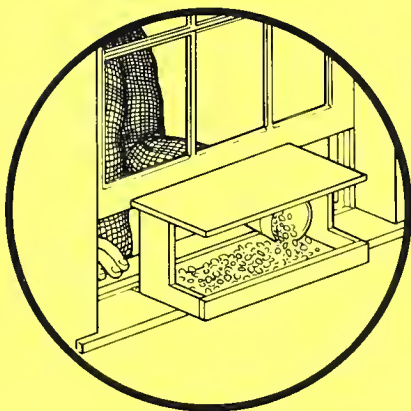
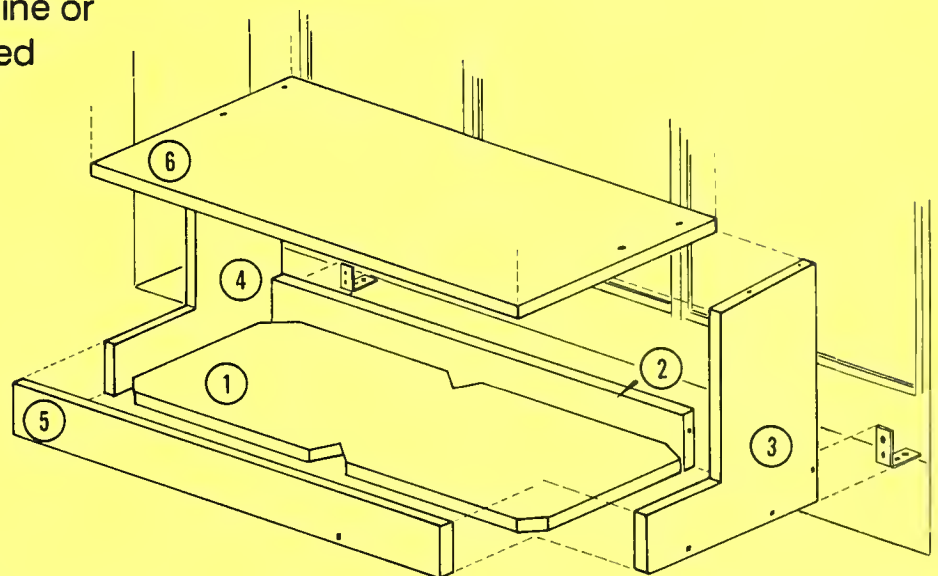


Wire through hose

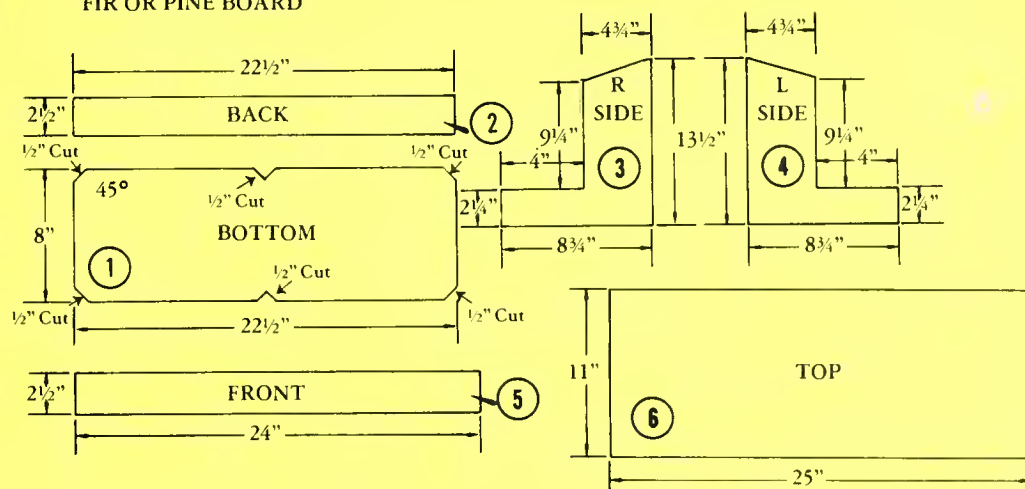
Materials:
10 X 20 inch
hardware
cloth.
Fishing line,
heavy string
or fine wire.

PLATFORM WINDOW FEEDER FOR: A large variety of birds

Equipment needed: 8 foot 1X12-inch pine or fir shelf board. Use 1 1/4-inch galvanized wood screws. Drill holes first to avoid splitting the wood. Mount the feeder to the window with corner brackets.



1" SHELF WOOD
FIR OR PINE BOARD



Platform feeders can also be installed on a post away from the house, such as the one already installed in the Baily's backyard. Put out only a one or two day supply of food at a time so the feeder doesn't get clogged with seed shells. Let some food fall for the ground feeders to find. See Page 40 for information on where you can get additional woodworking plans.

Planting for WILDLIFE

provide gourmet meals and habitat--watch wildlife as if

Do you want to help wildlife? Why not plant a few seedlings? The Game Commission offers seedling packets for \$2 every spring. The packets contain 3 each of 5 species. The species in the packet might change from year to year, but regardless, the species selected are designed to provide food and cover for wildlife. Examples are:

Washington hawthorne

Crataegus phaenopyrum

A small, dense, tree that reaches to 30 feet in height and produces bright, glossy red quarter-inch fruit. Excellent plant by itself, or can be used as a screen or border.



White spruce

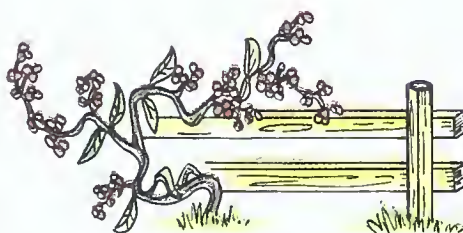
Picea glauca

Low growing branches furnish good ground cover. Can be pruned or topped for ground cover or hedge. Can grow in shady areas.

American bittersweet

Celastrus scandens

A vine-like shrub, often found on fence rows or road banks. It flowers in June and produces an orange fruit in October that the birds like to eat.



Japanese flowering crabapple

Malus floribunda

A tree-like plant that produces lots of fruit that looks like crabapples. Provides lots of winter food for wildlife, especially pheasants and grouse.



Eastern white pine

Pinus strobus

Fast-growing native tree that provides excellent wildlife cover.

Where and when? Write or Call the Game Commission

To find out where and when the packets are available, contact the Information/Education Supervisor in the regional office that serves the county in which you live.

NORTHWEST REGION

Post Office Box 31
Franklin, PA 16323

814-432-3187 1-800-533-6764

SOUTHWEST REGION

Post Office Box A
Ligonier, PA 15658

412-238-9523 1-800-243-8519

NORTHCENTRAL REGION

Post Office Box 5038
Jersey Shore, PA 17740

717-398-4744 1-800-422-7551

SOUTHCENTRAL REGION

Post Office Box 537
Huntingdon, PA 16652

814-643-1831 1-800-422-7554

NORTHEAST REGION

Post Office Box 220
Dallas, PA 18612-0220

717-675-1143 1-800-228-0789

SOUTHEAST REGION

R.D. #2, Box 2584
Reading, PA 19605

610-926-3136 1-800-228-0791

through a microscope

Jeff and Joni decided to buy a Game Commission seedling packet to add to trees and bushes that were already planted and established. They planned their backyard wildlife habitat to include not only the trees for cover and

nesting, but a bird bath and feeding station. They also included plants for butterflies and hummingbirds. They arranged everything so they could keep watch from the house. This is what it looked like:



A few words about feeders

Jeff found out that there are all kinds of bird feeders just as there are all kinds of birds. Different birds eat different types of food. Some like to eat at the feeder, others prefer the ground. To make things simple, Jeff decided that the best feeder to start out with is the platform type for seed eating birds. (See woodworking for wildlife)

He also learned that to attract a variety of seed-eating birds, he should buy a bird seed mix which includes sunflower and millet seeds.

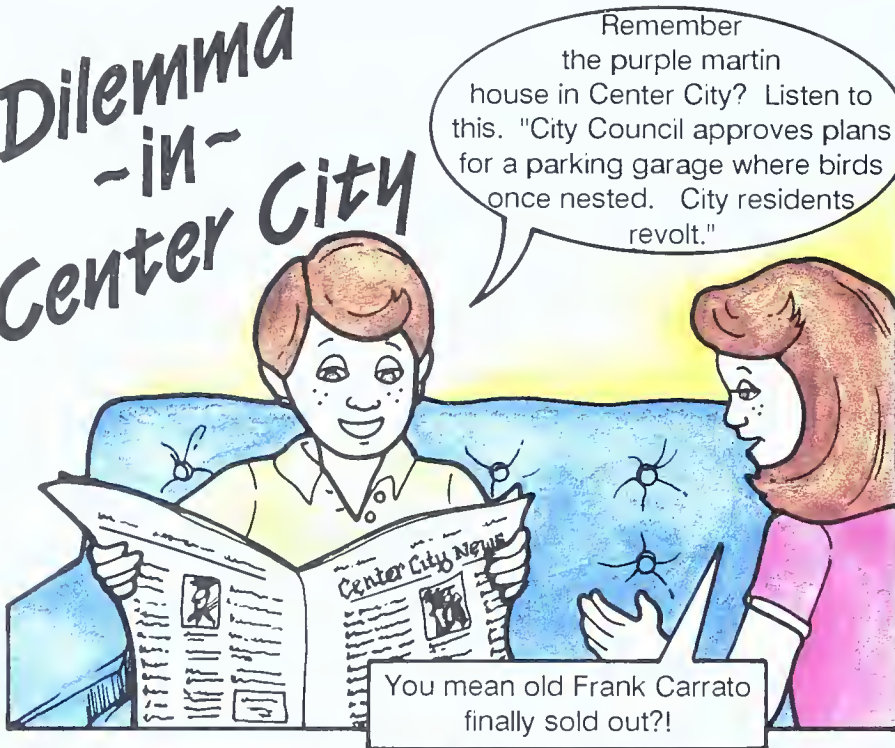
They knew if they began feeding the birds in the fall they shouldn't stop until the birds had food available in the spring.

Joni learned that the feeder should be cleaned regularly because feeders become clogged with dirt, stems, and hulls.

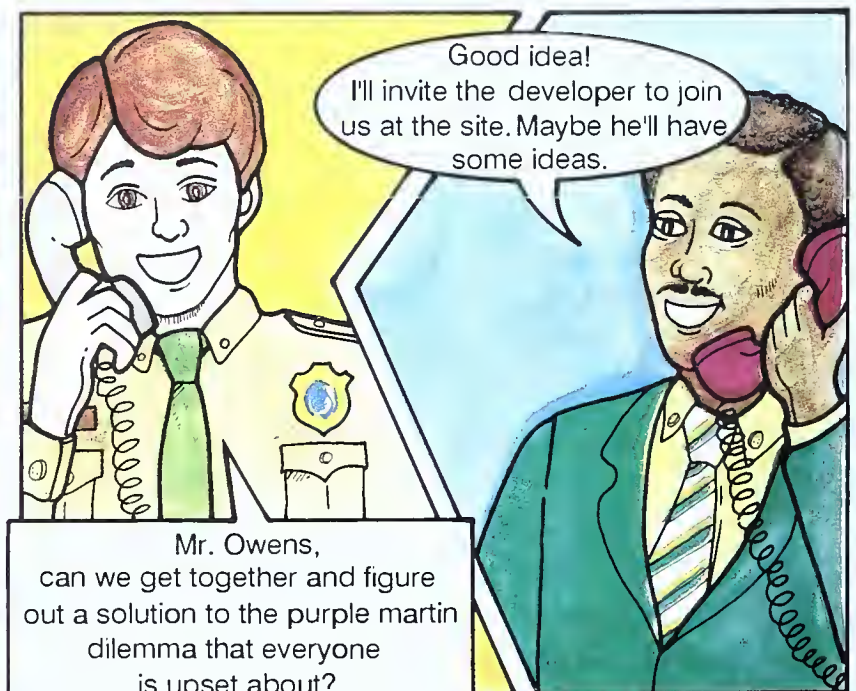
Jeff and Joni's Wildlife Check List

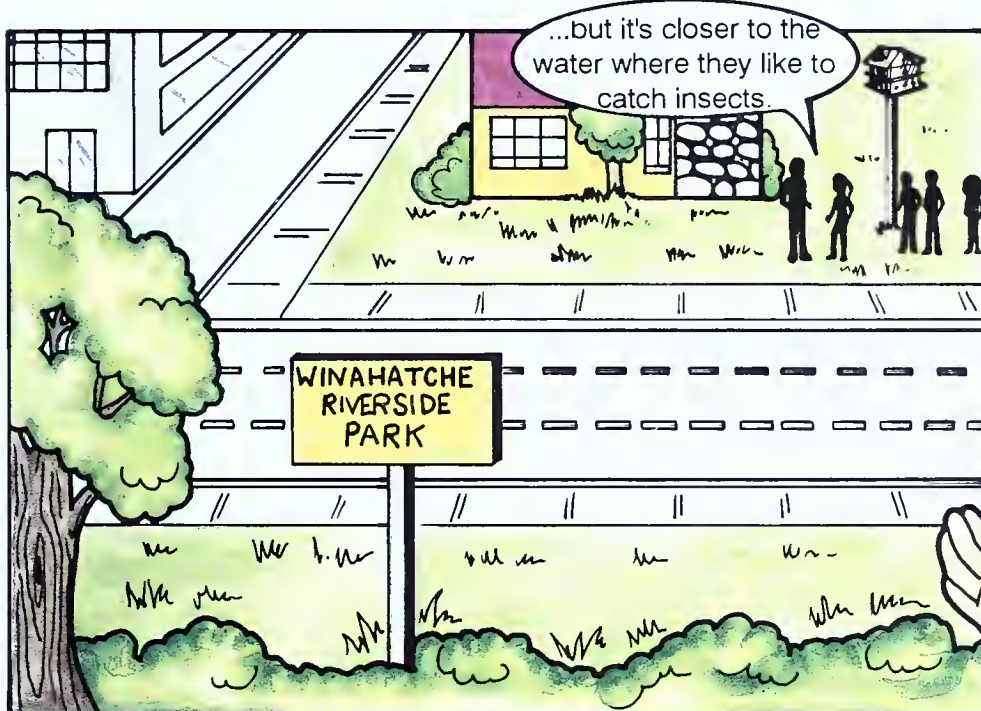
Species	Date	Remarks
Blue jay	2/14	Noisy
Cardinal	1/6	Pretty red
Chickadees	11/4	
Evening grosbeak		
Common grackle	3/30	chasing other birds
American goldfinch	4/16	Bright yellow
House finch		
Purple finch		
Tufted titmouse		
Cowbird		
House sparrow		
Mourning dove	3/17	picking up seeds on ground
Song sparrow		
Rabbit	5/2	eating grass
Whitetail deer		
Red squirrel		
Grey squirrel		
Chipmunk		
Garter snake		

Dilemma -in- Center City



The specially built bird house on the old Carratto family property in downtown Center City became a landmark. For many years, townspeople looked forward to the return of purple martins from their winter hibernating grounds in South America.





Conservationists Hall of Fame

Conservation was advanced because of his policies. More national land was set aside during his presidency than any president before him. He was born in New York in 1858 and died there in 1919. He made conservation a national issue in 1901 and stressed the need to conserve natural resources. He liked to hunt and went on a famous African safari.

His name is: _____



John Muir

One of our first conservationists, he founded the Pennsylvania Forestry Association in 1886. In 1887, the state established a Forestry Commission and ten years later, the legislature voted for funds to begin the first 40,000 acres of state forest. He was a physician from McVeytown, Pennsylvania.

His name is: _____



John James Audubon

Natural was her ethic. She warned of the dangers of using the pesticide DDT in her book, Silent Spring. As a biologist, her constant study of, and deep appreciation for the natural world, caused her to become the spokesperson for a national movement aimed at controlling chemical pesticides. Born in Springdale, Pennsylvania in 1907, she was a quiet and reserved woman whose love of the outdoors began as a young child. She died in 1964.

Her name is: _____



Aldo Leopold

Seeing realism in the birds that he painted was his main interest. He was an American artist and naturalist who is famous for his drawings of birds in their natural habitats. He lived in many places, but for several years made his home at a farm called Mill Grove near Norristown, Pennsylvania. He was born in 1785 and died in 1851. A national conservation organization is named after him.

His name is: _____



Rachel Carson

(answers on inside back cover)

--Can You Identify Them?



Izaak Walton

Exploring the Sierras for ten years in the 1870's, he was an American naturalist and conservationist who successfully stood up for the establishment of national parks and the preservation of forests. Yosemite and Sequoia National Parks were established in 1890 through his efforts. He loved children and wrote charming letters to them.

His name is: _____



Dr. Joseph Rothrock

Round River, Wisconsin was his stomping grounds. Game management was his main interest. He founded the profession and wrote the first book about it. He acted as advisor on conservation to the United Nations. His conservation ethic is published in a book titled A Sand County Almanac, which is an environmental classic. He died in 1948 while fighting a brush fire.

His name is: _____



Value to the importance of conservation was seen in the forestry programs he established on the national, as well as state level. He served as a Pennsylvania Governor and then went on to serve as head of the U.S. Forest Service where he restricted the use of natural resources such as timber and coal. He returned to Pennsylvania to head the state forest program. A state park is named for him.

His name is: _____

Teddy Roosevelt



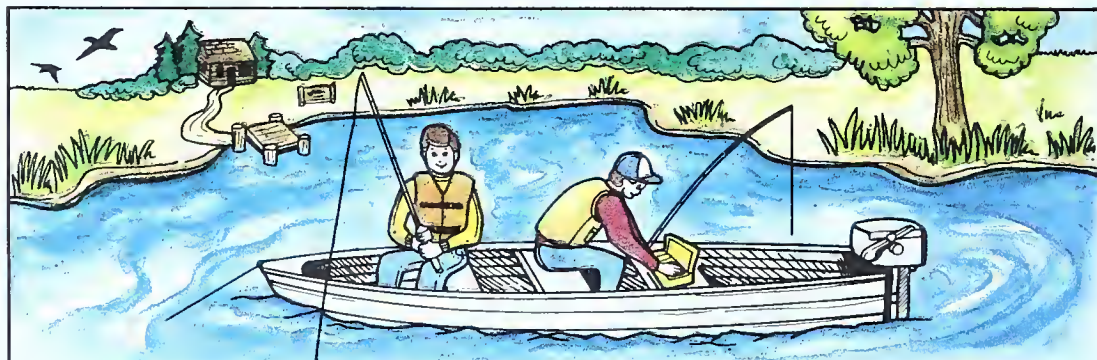
Gifford Pinchot

England was the country that he called home. He was a 16th century writer who wrote a famous book called The Complete Angler. He actively supported conservation practices. The nation's oldest, and one of the most respected, conservation organizations is named after him. Its purpose is to defend America's soil, air, woods, waters, and wildlife.

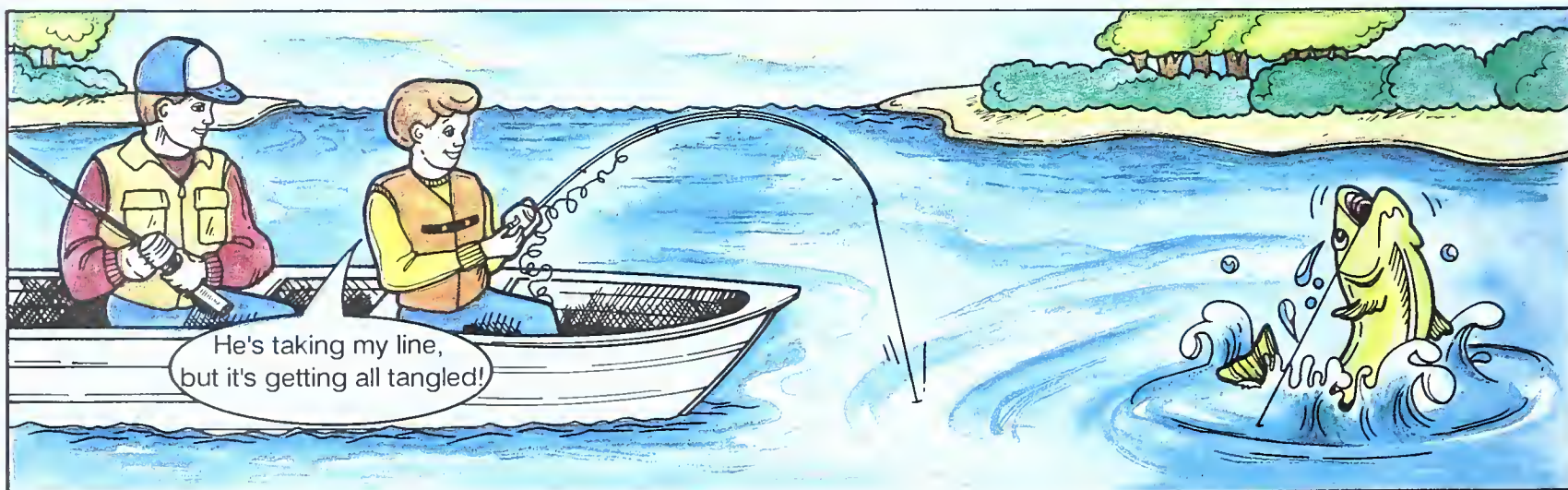
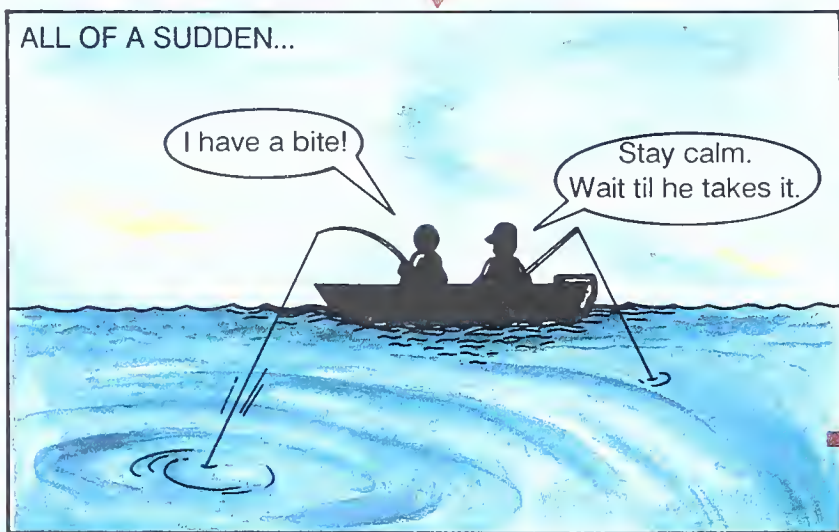
His name is: _____

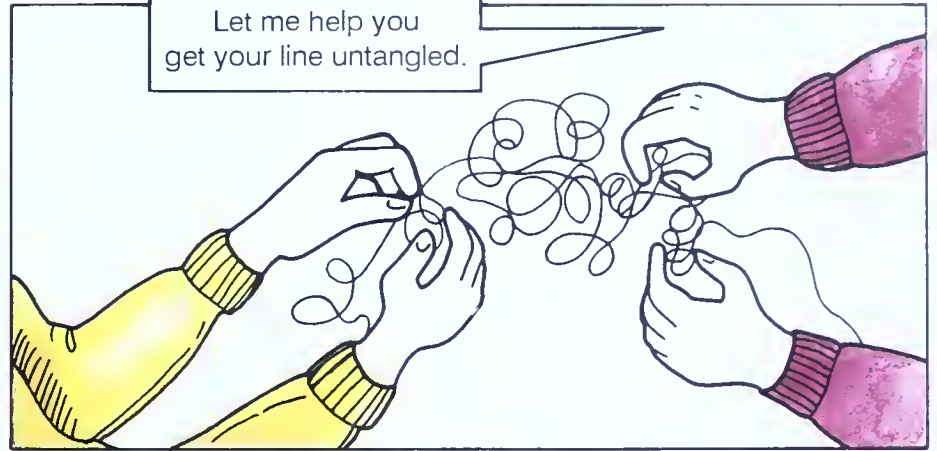
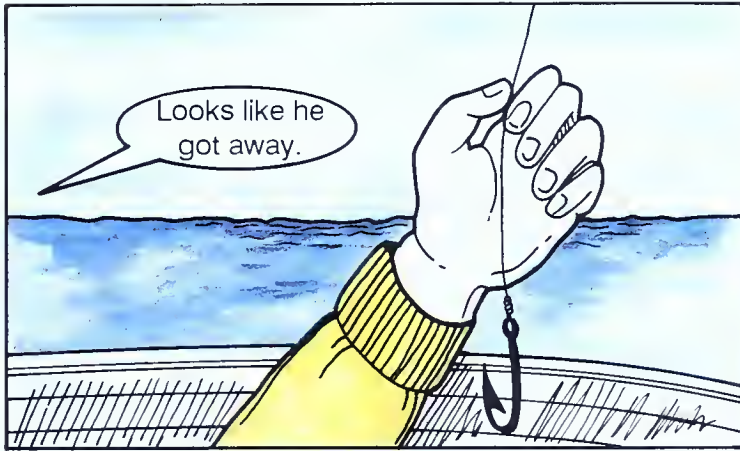
(answers on inside back cover)

The Clue of the Twisted Line

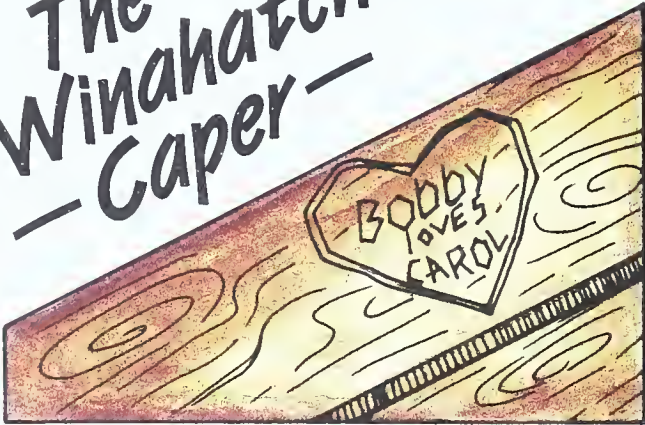


The weather was perfect for fishing. Jeff and his dad rented a boat at Winahatche State Park for some fishing on the lake.

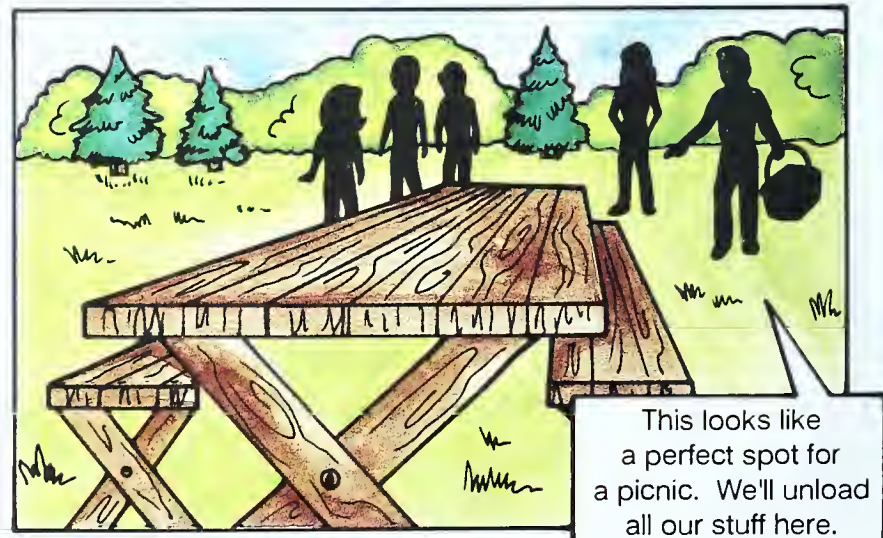
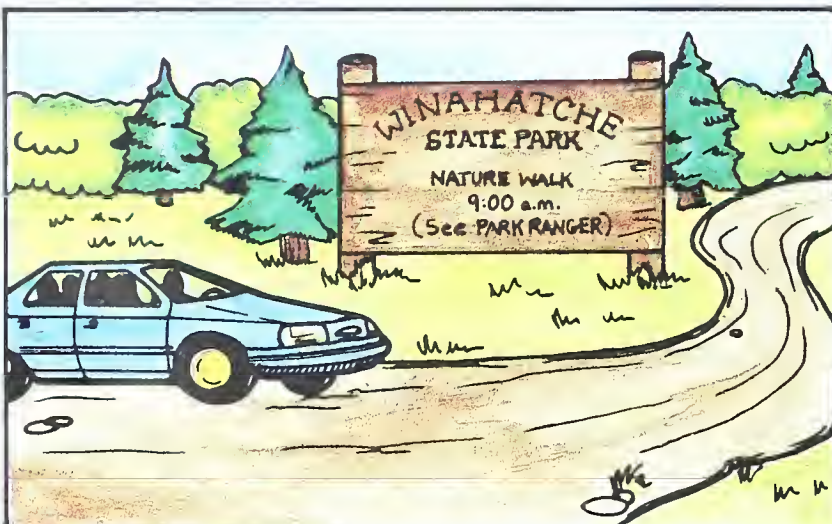


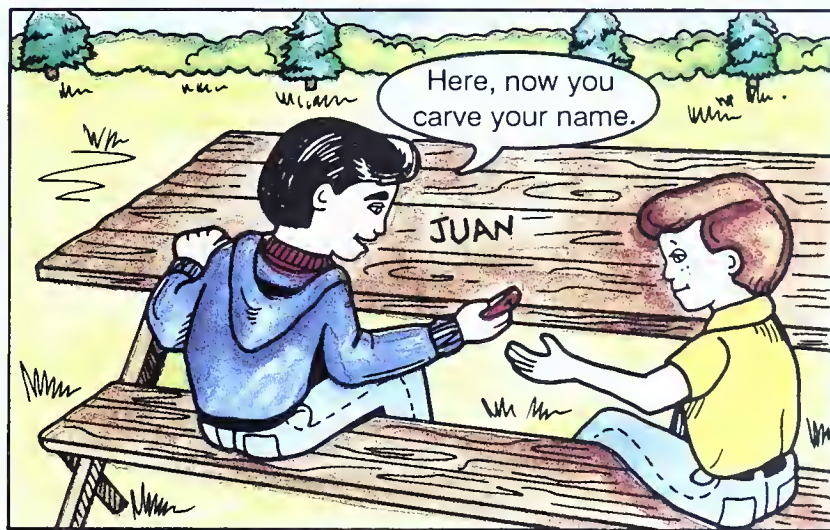
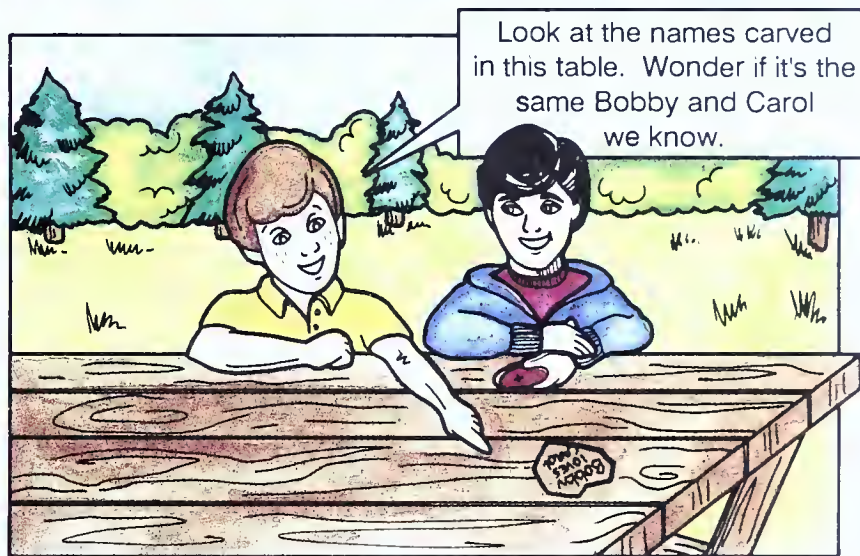
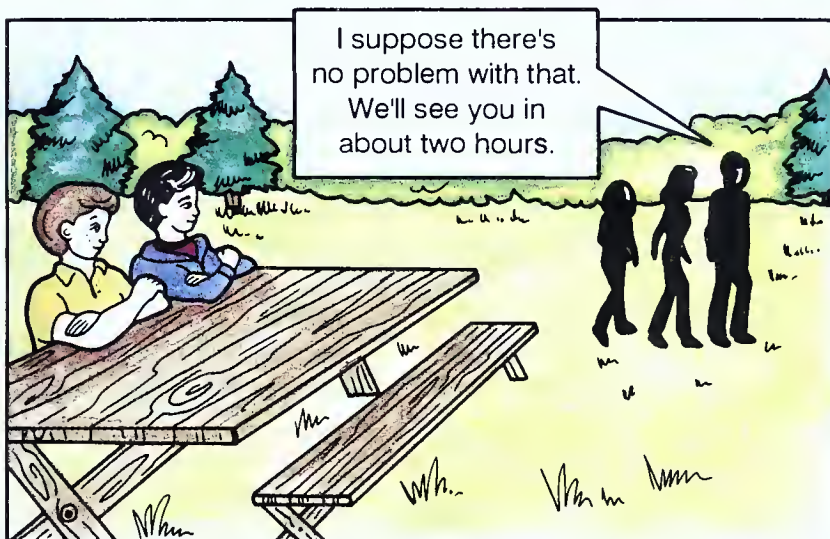


The Winahatche Caper—



The next Saturday...















Plants for all seasons and reasons

Think about sitting in the middle of a field on a hot summer day with the scorching sun beating down on you. You're hot and thirsty. Now, in your mind, plant a large tree beside you--maybe a sycamore tree with large leaves that can provide lots of shade. Sit down on a log stump that suddenly appears, with grass and wild plants growing all around you. Sip on a cool wild mint drink. What a pleasant change!

Plants are precious resources that we need to take care of. It's important to learn some things about plants, especially if you're ever going to be walking around in the woods. Even though some plants can make humans itch or sneeze, these plants might provide benefits to humans that we don't even know about yet. If we destroy them, they won't be here for future scientific research. We need to learn how to identify the ones that bother us, like poison ivy and stinging nettles, so we can avoid them. See if you can

MATCH THE PLANT WITH ITS EXPLANATION.

- a.  Spotted touch-me-not, or sometimes called jewelweed, *Impatiens capensis*
- b.  Poison ivy, *Rhus radicans*
- c.  Dittany, *Cunila origanoides*
- d.  Stinging nettles, *Urtica dioica*
- e.  Mountain laurel, *Kalmia latifolia*
- f.  Sweet goldenrod, *Solidago odora*
- g.  Dandelion, *Taraxacum officinale*
- h.  Purple-flowering raspberry, *Rubus odoratus*
- i.  Eastern hemlock, *Tsuga canadensis*

- j.  Northern fox grapes, *Vitis labrusca*

1. Leaves 3, let it be
(Hint: a plant that can cause an itchy skin rash). ☐
2. The mature plant grows stinging hairs that cause itching if they touch your skin. ☐
3. A plant that can cause sneezing. ☐
4. A wild plant that produces an edible berry. ☐
5. The juice from the plant stems and leaves soothes the sting of nettles and is said to prevent the rash from poison ivy. ☐
6. Steeped in water, the leaves of this plant make a delicious tea. ☐
7. The young leaves of this plant can be used for salad or cooked greens. ☐
8. A high-climbing vine with forked tendrils that produces bunches of fruit. ☐
9. The official state tree. ☐
10. The official state flower. ☐

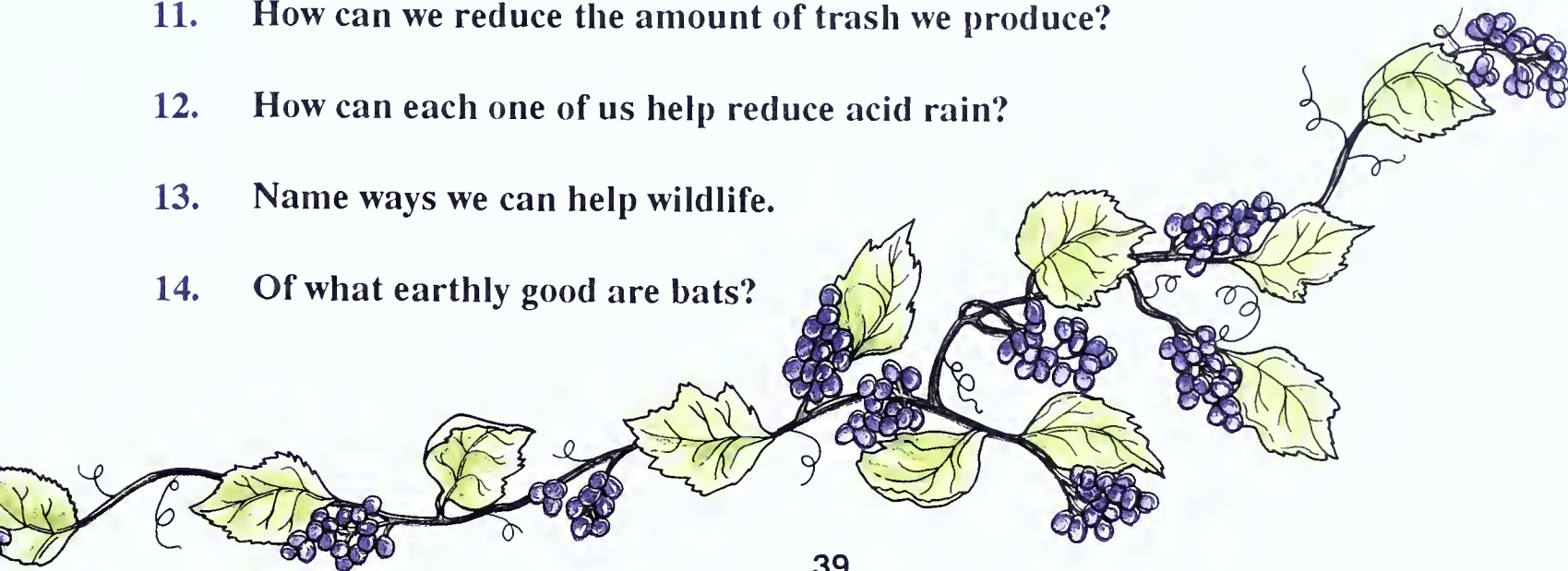
(answers on inside back cover)

CONSERVATION QUIZ

How much can you remember?

Relax! Most of these questions can be answered by just using a little common sense. Just think about the stories in Outdoor Adventures. What would Jeff or Joni have done? Write your answers on a separate sheet of paper. Good Luck!

1. If we decide to buy a snake at the local pet store, can we be sure that it's not taken from the wild? What should we do?
2. Most endangered species come from what type of habitat? Why are there so many species from this type of habitat rather than from other types?
3. If we are given the privilege to hunt in a farmer's field, is it important to pick up the empty shotgun shells from the ground as we hunt? Why?
4. If we aren't planning to eat the fish or game we catch or take, what should we do with it?
5. True or false. When we walk through the mountains, our chances of being bitten by a snake are very low. Why? What do snakes eat?
6. T or F. It's possible, and makes good sense, to attract birds to a city. Why?
7. How should fishing line be discarded? What about plastic six-pack rings?
8. What is the most important dilemma that faces all of mankind today?
9. Why shouldn't we transplant to our gardens plants from the wild?
10. How can we help reduce the cost of maintaining our state parks?
11. How can we reduce the amount of trash we produce?
12. How can each one of us help reduce acid rain?
13. Name ways we can help wildlife.
14. Of what earthly good are bats?



Read More About It...

Why not try to find out more about the various issues you read about in Outdoor Adventures. Write and ask for free booklets and informational pamphlets available from many sources. Addresses and/or telephone numbers are listed below by subject.

WATER-we can't live without it

A slide and tape set for students-14 minutes long and covers water cycle, water conservation and pollution, and effects on aquatic life. Item #J479267 - \$5

National Wildlife Federation

1412 16th Street NW
Washington, DC 20036
1-800-432-6564

Planting for wildlife

Find out the nearest location for purchasing seedling packets by calling the Game Commission regional office in your area as listed on page 28, or call the Conservation District in your county.

Woodworking for wildlife

A 60-page book filled with the latest information and plans for building, placing and maintaining nest structures for 41 species of wildlife. Available for \$3 from:

Wild Resource Conservation Fund

P.O. Box 8764
Harrisburg, PA 17105-8764

Endangered & Threatened Species of

BIRDS AND MAMMALS

Nongame & Endangered Species
Coordinator

*Pennsylvania Game Commission

Bureau of Wildlife Management
2001 Elmerton Avenue
Harrisburg, PA 17110
(717) 787-5529

PLANTS

Botanist

Department of Conservation & Natural Resources Bureau of Forestry

P.O. Box 8552
Harrisburg, PA 17105-8552
(717)787-3444

FISH REPTILES, AMPHIBIANS

Endangered Species/Herpetology Coordinator

Pennsylvania Fish and Boat Commission

Division of Fisheries Management
450 Robinson Lane
Bellefonte, PA 16823
(814) 359-5113

Groundwater and land use

Department of Environmental Protection Bureau of Water Quality Management

P.O. Box 8465
Harrisburg, PA 17105-8465
(717)787-9633

Amazing soil stories

Education materials available from your
County Conservation District.

PLAY (The PLAY newsletter)

Newsletter for students. \$3 for 4 issues.

Available from:

Pennsylvania League of Angling Youth

*Pennsylvania Fish and Boat Commission

P.O. Box 6700
Harrisburg, PA 17106-7000

America's Wetlands--

Out vital link between land and water

Public Information Center

U.S. Environmental Protection Agency

401 M Street, SW
Washington, DC 20460

Mending Fences

A 12-page manual on a successful program to improve relationships between landowner and recreationists.

Available free (first one) from:

The Izaak Walton League of America

707 Conservation Lane
Gaithersburg, MD 20878

Phone: (301)548 0150 FAX (301) 548-0146

Recycling Works. Here's How.

A 14-page booklet offering a recycling plan of action.
Available from:

Department of Environmental Protection

Bureau of Land Recycling & Waste Management

P.O. Box 8472
Harrisburg, PA 17105-8472

*Lists of free and paid literature are available from the Game Commission and Fish & Boat Commission. *(use addresses above) For a list of publications from DEP and DCNR, write Office of Public Liaison, P.O. Box 2063, Harrisburg, PA 17105-2063. Also, the Chesapeake Bay Education Office at 225 Pine Street, Harrisburg, PA 17101 can send you a list of brochures and booklets that are available. The Bureau of State Parks also has a list of brochures available. Call toll free 1-800-63-PARKS.*

Answers to Puzzles

Page 4

Endangered means it's not too late

- | | |
|----------|---------|
| 1. true | 1. true |
| 2. true | 2. true |
| 3. true | 3. true |
| 4. true | 4. true |
| 5. false | 5. true |
| | 6. true |

Page 8

Wetlands matching game

- | | |
|--------|---------|
| 1 - 4 | 7 - 8 |
| 2 - 1 | 8 - 7 |
| 3 - 9 | 9 - 2 |
| 4 - 3 | 10 - 6 |
| 5 - 10 | 11 - 5 |
| 6 - 12 | 12 - 11 |

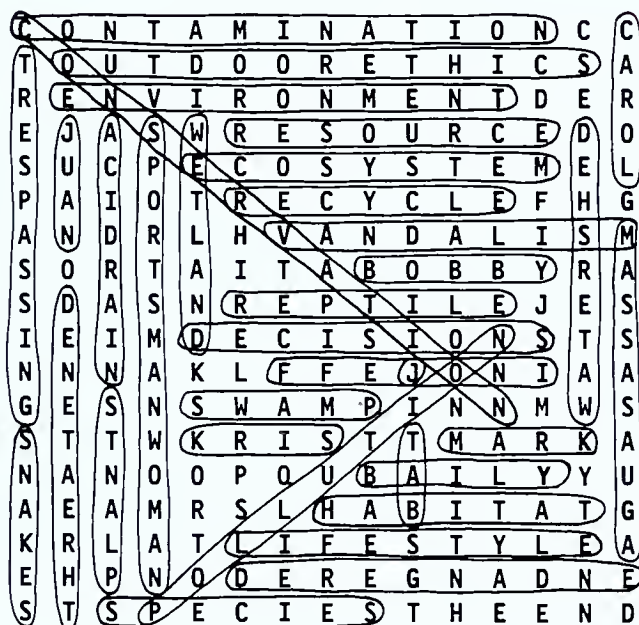
Page 17

A right or privilege?

1. R and P
2. P
3. R and P
4. P
5. R and P

Page 20

Conservation word search



Page 24

Hidden attic tenants

1. true
2. true
3. true
4. true
5. true
6. true
7. true
8. true
9. true
10. true
11. false

Page 25

Under the cellar staircase

1. true
2. true
3. true
4. true
5. true
6. true
7. false
8. true
9. true
10. true
11. true

Page 32 & 33

Hall of fame

- C - Teddy Roosevelt
- O - Dr. Joseph Rothrock
- N - Rachel Carson
- S - John James Audubon
- E - John Muir
- R - Aldo Leopold
- V - Gifford Pinchot
- E - Izaak Walton

Page 38

Plants for all seasons

- | | |
|------|-------|
| 1. b | 6. c |
| 2. d | 7. g |
| 3. f | 8. j |
| 4. h | 9. i |
| 5. a | 10. e |



The Wild Resource Conservation Fund was established in 1982 by the Pennsylvania Legislature to help finance non-game wildlife and native wild plant programs. These programs are carried out by the Commonwealth's environmental agencies: the Fish & Boat Commission, the Game Commission, the Department of Conservation & Natural Resources, and the Department of Environmental Protection. These agencies have the responsibility for managing and protecting all the renewable natural resources within the state's borders.

The Fund is financed through donations from citizens who receive state tax refunds. If a person is expecting to receive a state tax refund, all or part of it may be donated to the Wild Resource Conservation Fund. If a person doesn't have a refund due, the person can make a direct, tax deductible, donation to the Fund.

RETURN A GIFT TO NATURE

You can make a difference, make a Direct Contribution
DO SOMETHING WILD

Enclosed is my contribution of \$ _____

Name: _____

Address: _____

City: _____ State _____ Zip: _____

Payable to : **Wild Resource Conservation Fund**
P.O. Box 8764, Harrisburg, PA 17105-8764

